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Institute of TRANSPORT

November 1953

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VOLUME 25 NUMBER 7

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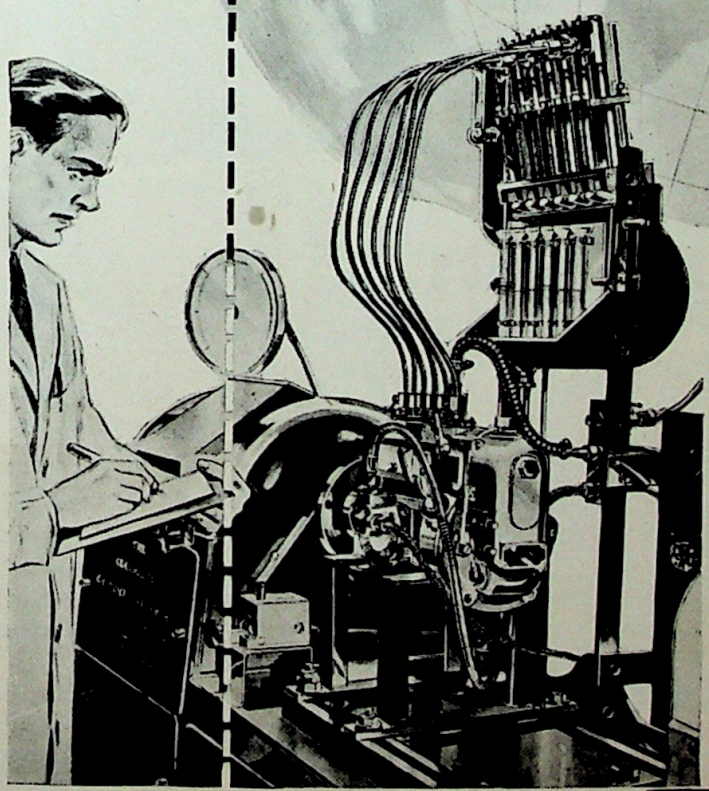

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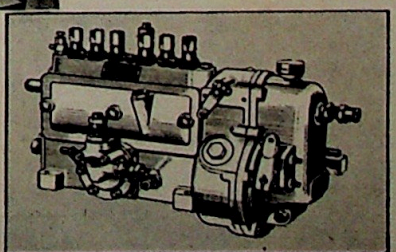

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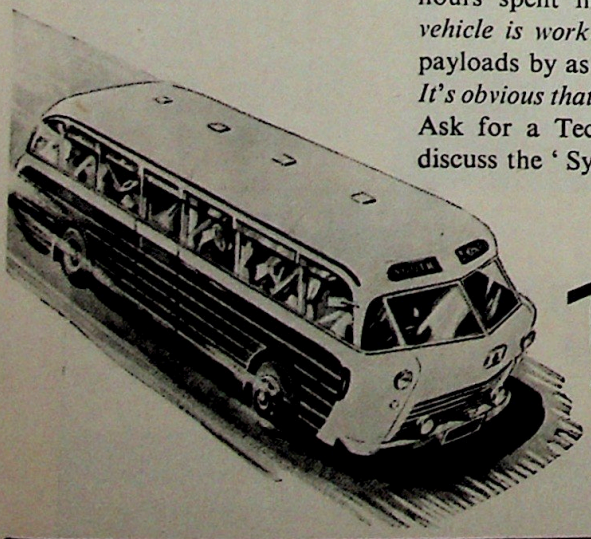

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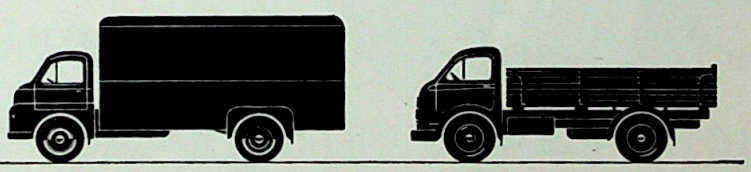

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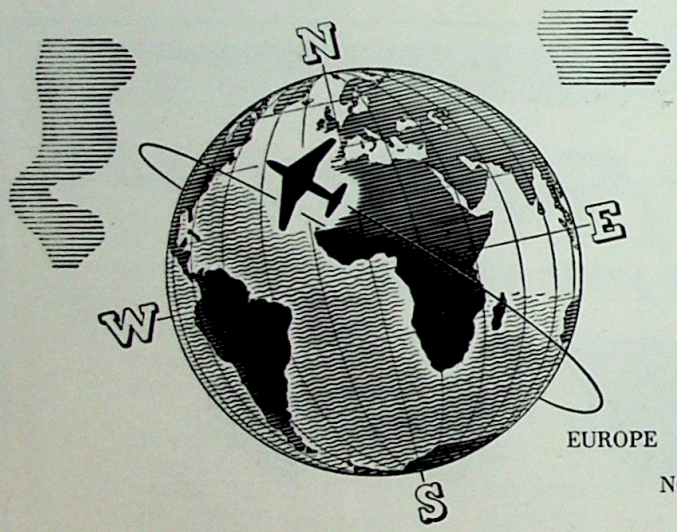

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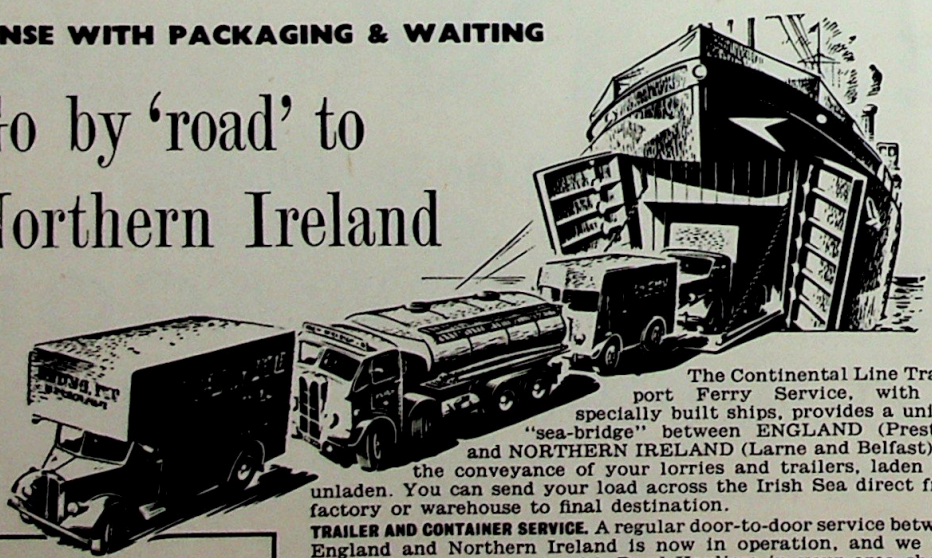

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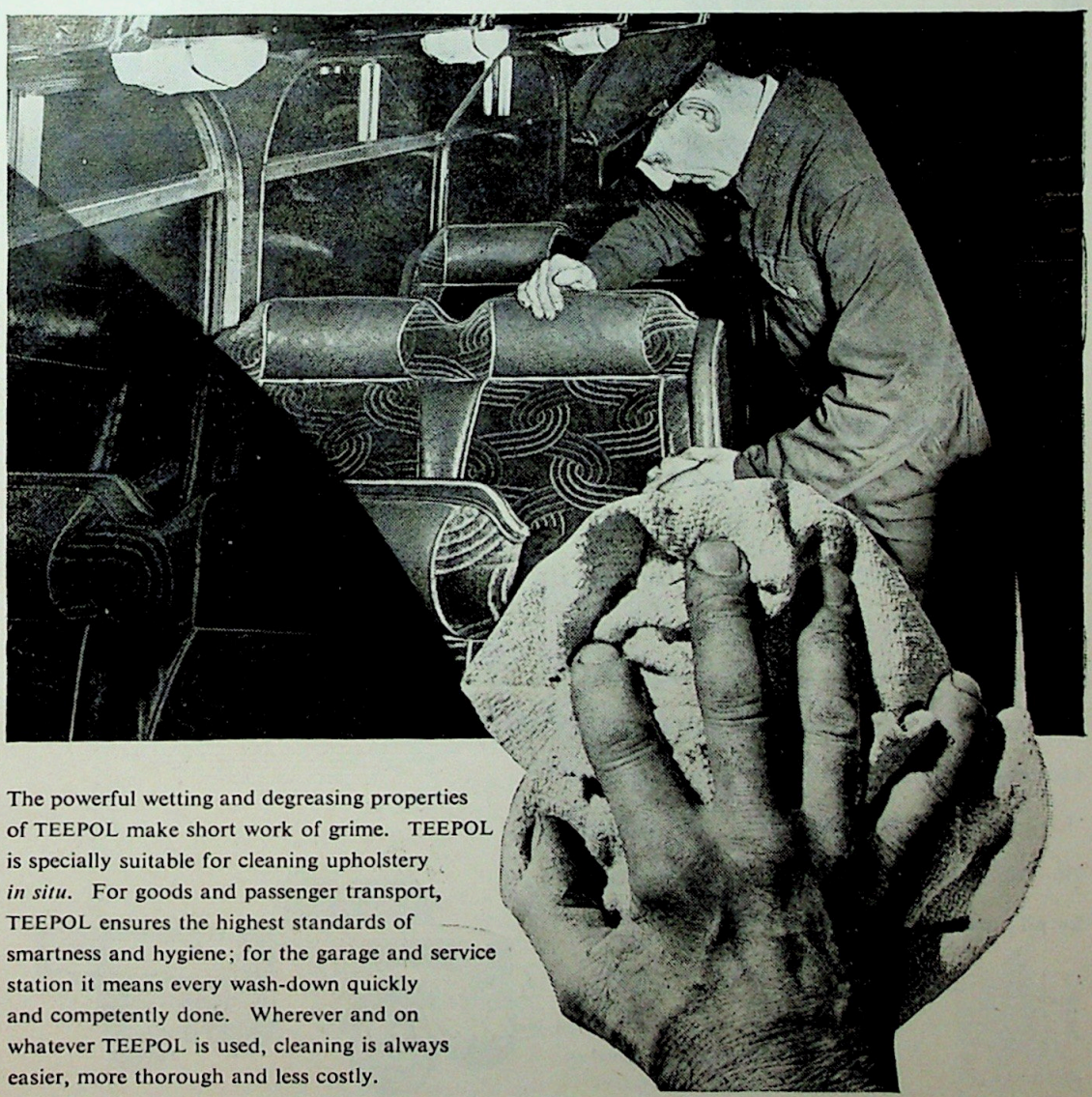

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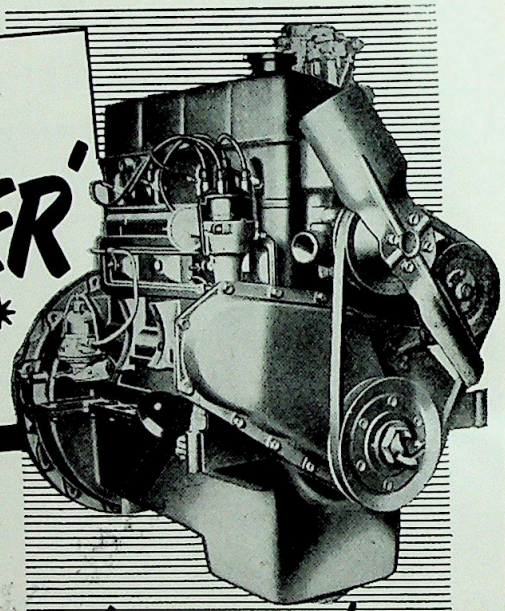

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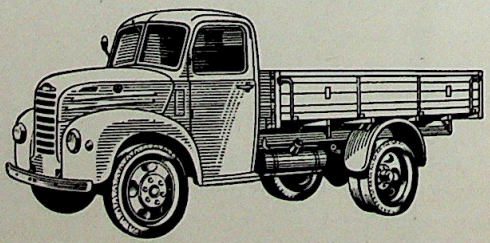

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THE PRESIDENT OF THE INSTITUTE, 1953-54

JOHN ELLIOT M.INST.T.

The Journal of the Institute of Transport

VOLUME 25 NUMBER 7 NOVEMBER 1953

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The Institute as a body is not responsible for the statements made or for the opinions expressed by authors or speakers. Their contributions are made in a personal capacity and do not necessarily represent the views of any organisation.

The President, 1953-54

Mr. JOHN ELLIOT became a Member of the Institute of Transport in 1938, and served on the Council, 1941-44.

He was born in 1898 and educated at Marlborough and the Royal Military College, Sandhurst. In 1917 he was gazetted to the 3rd Hussars and saw service in France, Belgium and on the Rhine. Mr. Elliot joined the Southern Railway in January 1925 as Assistant to Sir Herbert Walker (the General Manager), in charge of publicity and advertising. In 1930 he was appointed Development Officer in the newly formed Traffic Department, and in 1933 Assistant Traffic Manager. In 1935 he visited the United States and Canada to study rail, road and air conditions in those countries. He was made Assistant General Manager in 1937, and on the outbreak of war in 1939 became Deputy General Manager. Mr. Elliot took an active part in the development of rail and air services financed by the Southern Railway. He was Chairman of Great Western and Southern Airlines, and a Director of ten airline companies associated with the Railways. He was also a Director of various bus companies associated with the railways in the South of England.

In October 1947, Mr. Elliot took over the duties of General Manager, and on January 1st 1948, when the railways were unified, became Chief Regional Officer of the Southern Region. At the request of the Victorian Government he visited Australia in 1949, to investigate and advise on rail and road transport in that State, and in 1950 was appointed Chief Regional Officer of the London Midland Region, which position he retained until appointed Chairman of the Railway Executive on February 1st 1951. On the abolition of the Railway Executive and the retirement of Lord Latham, Mr. Elliot was appointed Chairman of London Transport Executive and took up his new duties on October 1st 1953.

Mr. Elliot is a Colonel in the Engineer and Railway Staff Corps (Royal Engineers), and was awarded the American Medal of Freedom with Bronze Palm for services to the United States armed forces during the war.

Great Britain holds the Senior Vice-Presidency of the International Union of Railways, and Mr. Elliot was nominated in 1951 to the position, which he still holds.

Mr. Elliot was made an Officer of the Legion of Honour at a ceremony at the S.N.C.F. Head Offices in Paris in 1953.

Notices

G. B. Howden, M.Inst.T.
Chairman, Northern Ireland Section

Examination Entries

Entry forms for the examinations to be held on May 3rd, 4th and 5th 1954 will be available on application to the Secretary of the Institute from January 1st 1954. The completed forms must be returned to the Institute by March 1st, after which date none can be accepted.

Forthcoming Meetings

Mondays at 5.45 p.m. in the Jarvis Hall, 66 Portland Place, London, W.1

Dec. 14—Henry Spurrier Memorial Lecture. "Road transport and the manufacturer" by HENRY SPURRIER, M.INST.T.

Jan. 11—"Transport in the municipal field: problems of the day" by W. M. LITTLE, M.INST.T.

Education Discussion Meetings

Wednesdays at 6.0 p.m. at 80 Portland Place, London, W.1

Nov. 25—"Transport Finance and Accounting: its place and treatment in the Institute's examinations scheme". Discussion opened by R. E. G. BROWN, M.INST.T., and C. F. W. SAUNDERS, A.M.INST.T.

Jan. 13—Particulars to be announced.

Annual General Meeting

The Annual General Meeting of Corporate Members of the Institute will take place on Monday, December 21st 1953 at 5.45 p.m. at 80 Portland Place, London W.1.

Annual Dinner

The Annual Dinner will be held at Grosvenor House on Friday, February 26th 1954. Further particulars will be circulated.

Continental Visit

Arrangements are in hand for a visit to France (headquarters Paris), May 3rd—12th 1954, inclusive. Further particulars will be circulated.

Obituary

The Council reports with deep regret the loss by death of the following members :—

Members

BOLTON, LOUIS HAMILTON. Director, Bolton Steam Shipping Co., Ltd.

MACKILLOP, *Brigadier* IAN LAWRENCE HENDERSON, C.B.E. Director of Engineer Stores, War Office.

SHEPHERD, WILLIAM ALFRED. Transport Officer, Nestlé's Milk Products, Ltd.

TOYER, ALFRED EDWARD. Commissioner for Main Roads, New South Wales.

Associate Member

NORTH, GEORGE MONTAGU. Goods Agent (Harrogate), British Railways (N.E. Region).

Associate

WALSH, JOHN LISTER. Director, Thames Land Co., Ltd.

Graduate

BLACKWOOD, JAMES BEVERIDGE. British Railways.

Student

WALSH, JOHN JOSEPH. British Railways.

Standing Committees of the Council, 1953-54

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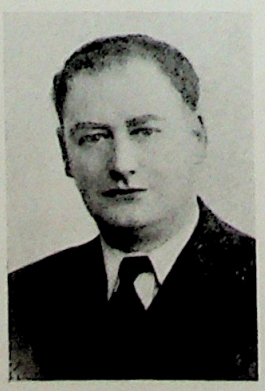
(Continued on page 28



L. Matthews, M.Inst.T.
Chairman, Sheffield Section

An Account of Stewardship

JOHN ELLIOT PRESIDENT

Presidential Address delivered in London on October 5th 1953.

When, last April, the President told me that the Council had done me the honour of asking me if I would follow him, and I said that if elected I would do my best, I could not know in exactly what state of peace or turmoil our industry would find itself in October. I suspected that it might well be the latter. Such things have been known to happen even in our solid profession when division bells have been ringing themselves red hot at Westminster for the best part of a year. And as the spring and alleged summer dripped rapidly by, I kept reminding myself—in between the midnight reading of Hansard—that this address was not yet thought out, much less written. Finally, still in the dark, so to speak, I gathered my thoughts together and faced up to the formidable yet pleasurable task of composing my address.

It is a strange coincidence that the long arranged date of this meeting, and the official end of the Railway Executive, should so nearly coincide ; be that as it may, as Chairman of that much discussed legal entity until last week, I feel that my subject has the merit of topicality at least ; at most it will record a story of hope, endeavour, success, and failure ; and from it we in transport have something to learn. For tonight I propose—I hope quite properly—to devote my time and yours to describing, of course in a highly condensed form, what by Act of Parliament the Railway Executive was meant to do, how it set about its task under the British Transport Commission, what its major problems were, how in my view it succeeded and where—equally in my view and not necessarily in anyone else's—it failed, and what are the principal lessons to be learned from its six years of struggle, trial and error.

The Principles of Railway Unification

One of the practical intentions of the Transport Act of 1947 was that unification would present opportunities for increasing efficiency and securing economies. So since January 1st 1948 the railways of Britain have been operated as a single unified system, managed by the Railway Executive under a scheme of delegation by the British Transport Commission.

To be successful, organisation and management must be elastic, and ready to meet the changes which new demands and technical developments may require. Such has been the history of the railway industry of Great Britain from the time when the first line was opened to the present day.

At the beginning of 1948 when the railways were unified as " British Railways " there was a real prospect that, by careful evolution, traffic and technical efficiency could be increased and costs could be reduced still further. In my opinion, nothing that has happened since 1948 has shown this, at any rate, to be wrong.

The conception of a unified system of railways obviously created the need for a " British Railways " central management, otherwise unification would not have been implemented, for we are still human beings, with distinctly individual preferences at times ! The Railway Executive was appointed to be that central corporate management. This of course was new in the railway industry.

The original members of the Executive were selected, presumably, for their qualifications in particular spheres of railway management, and in the organisation of staff, with a chairman having general-manager experience, and two part-time members, representing industry and commerce. The Commission laid it down in writing that they were to exercise " functional " (i.e. departmental) responsibilities, relating generally to the departments in which they were particularly qualified, and to exercise general management as a corporate body. On this fundamental change also I will say a word or two later on.

Day-to-day services

It was of course essential that the day-to-day services and facilities should not be interrupted. The Executive inherited the four railway groups, each with a different but highly developed system of organisation, and it was at this old group level that these day-to-day services and facilities could most effectively be carried on. The geographical plan largely followed that already in existence, although some adjustments had to be made. It was, for instance, clear that the railways in Scotland could best be operated as a single unit, as was at first proposed by the Government of the day in 1921. The substantial economies (£3 million a year) and improved working secured in Scotland since 1948 have proved the advisability of this course. Six regions in all were constituted. Each already had an organisational structure of departments staffed and equipped to deal with the different parts of the day-to-day work, which were more or less self-contained and could function immediately.

The system of departments in the regions corresponded closely to the composition of the Executive itself, but as each region was a very large unit it was necessary to co-ordinate the work of the departments, and in particular to see that the day-to-day services were efficiently carried on, so six Chief Regional Officers were appointed for the purpose, of whom I happened to be one. I shall come to them later.

If one asks whether the form of Executive and the selection of members on the basis decided was good or bad, the answer is that it depends on what was sought to achieve. There can be no doubt what this was. First, the unification of the four groups into one undertaking had to be planned and carried into effect, aiming at increased efficiency and reduced costs. Secondly, net receipts had to be produced sufficient to cover the service of capital and other central charges. At the same time the day-to-day services had to be carried on and improved as rapidly as possible.

These immense tasks were begun in difficult conditions. In 1948, there was the aftermath of the war to contend with. Passenger travel was still not encouraged and there was a ministerial embargo against the issue of excursion fares. With men coming back from the Forces, the staff position was rapidly changing from day to day. It was a time when the railways like every other industry were in the midst of a change-over from a war-time and immediate post-war set-up to one of normal commercial enterprise and development. Today that is apt to be forgotten. It is necessary to remember, too, that in 1948 the railways were faced with most formidable

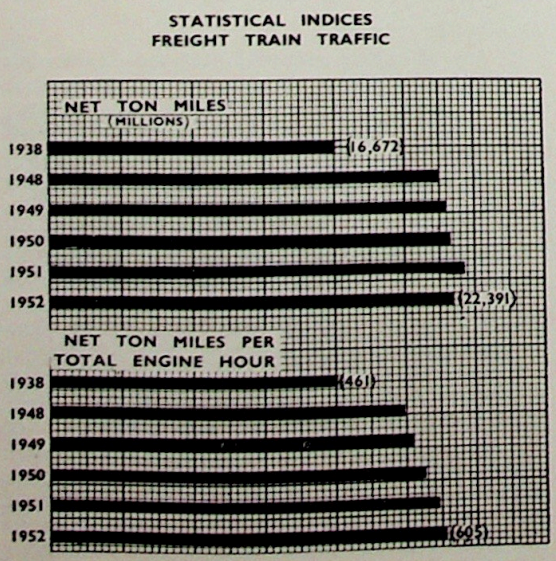


Figure 1

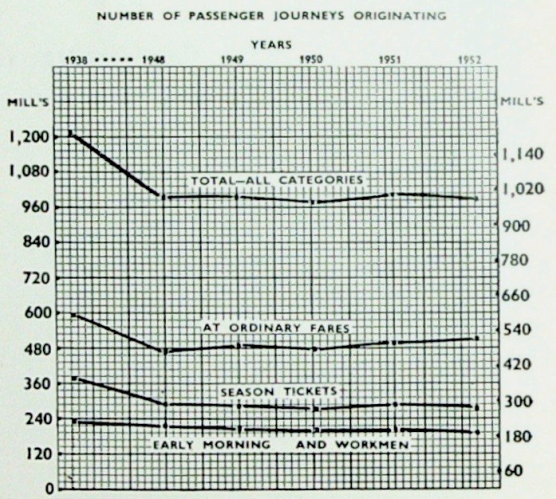


Figure 2

arrears of maintenance, and the almost complete absence of development and capital works for the preceding ten years.

While the regions could, and did, effectively carry on the day-to-day running of the railways, the full-time members of the Executive were required to bring specialised knowledge of their respective departments to bear on the aim of unification. In determining the best standards for the future (based largely on the best practices of the former companies) the Executive, its officers, and the officers of the six regions worked as a series of teams, under the direct guidance of the appropriate member of the Executive. This method produced results—technically and economically—more quickly than would have been possible if each region had been largely autonomous from the start, but as unification has been effected, there has been a continuous move towards decentralisation, especially in the last three years. The four group companies went through precisely the same cycle of changing emphasis after the amalgamations of 1923, the real difference in 1948 being the greater size of the undertaking concerned and the greater speed of the cycle of change.

After the organisational principles had been translated into specific working arrangements, the system began to function on January 1st 1948. The right of decision was in the hands of the Executive, but on the major managerial matters involved, Executive and Regions were far more often able to reach agreement by processes of logical discussion than the reverse, and this I can say with first hand knowledge.

The Fruits of Unification

Before 1948 the employment of the resources of the railways of Great Britain as a whole was

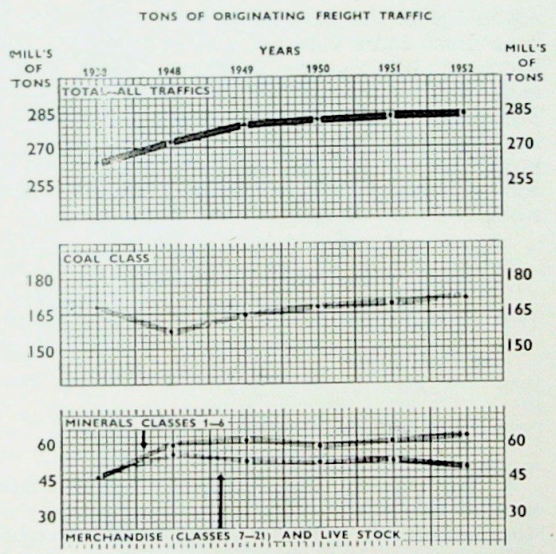


Figure 3

naturally restricted to some extent by separate ownerships and interests, although much was done by consent. The Executive, in the development of its total resources as occasion demanded, was not influenced by inter-company considerations, either physical or financial. It made the needs of the job the sole criterion.

On the score of efficiency, many facts could be quoted, and of these I may mention just a few :—

During the years 1947 to 1952 inclusive, net ton-miles (volume of freight work done) were greater than in any peace-time year since such all-railway statistics were first collated in 1920. Efficiency of freight working is best illustrated by the statistic "net ton-miles hauled per total freight engine-hour", which at 605 in 1952 (compared with 547 in 1948 and 461 in 1938) represented the highest level of efficiency in freight operating yet recorded in the history of railways in this country. (Figure 1).

The 1952 passenger-miles (i.e. the number of passengers multiplied by the distance they travelled) at 20,690 millions, were higher than in any pre-war year, with a lower passenger-train mileage.

Passengers and freight carried in 1952 were 988,997,000 and 284,916,000 tons respectively ; a greater task than in 1948 accomplished with over 1,700 fewer engines and with over 40,000 fewer staff. (Figures 2 and 3).

As a business undertaking the task of British Railways is to attract and to cater for the maximum possible share of the total national transport. Forecasts have to be made of the volume of business likely to mature, of the amount and kind of equipment needed to move it, and of the level of prices to be charged. Here I may say that in every year since their formation British Railways have earned a surplus of receipts over working expenses, including depreciation and renewals. Until 1951, however, this surplus was insufficient to meet in full the railways' share of capital remuneration and central charges, the shortfall for the years 1948 to 1950 being mainly due to the time-lag in the application of higher levels of charges because of the unavoidable legal processes involved. In 1951 and 1952 British Railways paid their way in full, and today, in fact, more work is being done, with less equipment, and relatively fewer staff than at any time in the history of our railways, leaving the war years out of it. (Figure 4).

There are still many advantages of unification to be secured if the new Commission decides to go after them. It will require much more time before the railways are finally developed as a cohesive transport unit and the maximum standards of efficiency and reductions in costs are secured thereby. Many of the schemes such as standard track and rolling stock, which have been initiated during these six years, can only fructify with time.

Operating improvements and economies

It is not, I think, realised by the public that British Railways are unique in the density of the traffics they are called on to handle. The mileage travelled by passengers on British Railways is more than on any other European railway system ; they also carry twice as many passengers as all the Class I railroads of the United States combined.

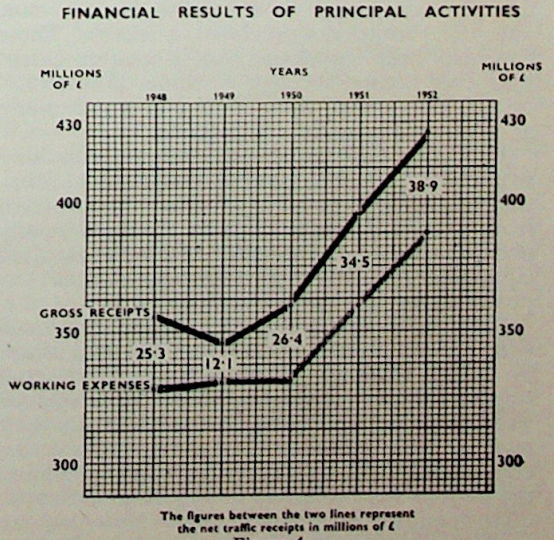


Figure 4

The resources of British Railways can best be used if the rolling stock—locomotives, coaches and wagons—can be operated in any part of the country. Before 1948 there were many restrictions on the inter-company use of such equipment, each company building stock to meet its own requirements, but not necessarily suitable to run freely over other companies' lines.

For the first time in their history British Railways have been able to make a nation-wide attack on traffic and rolling-stock problems. A variety of passenger coaches and freight wagons to a new standard permitting the widest possible use throughout the country has been produced. As a result substantial annual savings have been obtained in production, maintenance, and operating expenses.

Since 1948 it has been the constant aim of the management to speed up freight services and so give industry a better service. The number of wagons fitted with continuous brakes, enabling them to run at express speeds, has been increased so that whereas in 1938 there were only 291 express freight trains running every weekday, today there are 429. I do not say that this would not have been done anyway without unification, but it has been, with it.

Unification of railways has enabled many other operating improvements and economies to be made. In days of separate companies, numerous roundabout routes were used by reason of ownership or custom, and sometimes for individual company revenue purposes. The abolition of inter-company frontiers and agreements has enabled traffic to be worked over the most convenient and expeditious routes, irrespective of origin. Where the traffic has proved to be too great for efficient handling at marshalling yards and junctions, some of it is now diverted over alternative routes not previously available. There has also been developed, to a greater extent than ever before, through working of " block " or full-load trains, thus cutting down shunting at intermediate marshalling yards.

Important experiments with freight stock fitted with continuous brakes are in progress. Unification has made it possible to tackle this problem from a central source, and to ensure that any decision reached can be applied with standardised equipment on a country-wide scale, as rapidly as possible, for it is long overdue.

Substantial operating advantages, compared with pre-war, were derived from the acquisition by British Railways of over half-a-million coal wagons formerly privately-owned. These wagons were previously confined to the traffic of their owners, mainly colliery companies, with a circumscribed field of operation. When empty, the wagons were returned to particular collieries, often requiring long empty hauls. Now they are part of a single fleet and are used to the best advantage in the working of coal traffic, which is so much more vital today than it used to be. Moreover, the number of these wagons under and awaiting repair has been reduced to half. The figures of loaded and empty wagon-miles in 1938, 1951 and 1952 reflect the increased proportion of productive work that has been achieved from the unification of the wagon stock :—

WAGON MILES

Year	*Loaded (Productive)*	*Empty (Unproductive)*	*Proportion of Productive Mileage to Total*
	Millions	*Millions*	%
1938	3,003	1,492	66.8
1951	3,307	1,284	72.0
1952	3,183	1,281	71.3

A passenger rolling-stock committee has ensured that the maximum use is made of the stock available, while a headquarters freight rolling-stock control, with a daily inter-regional operating conference, by telephone, held as during the war, to adjust flows of traffic and to avoid delay and congestion, has secured a more equitable distribution than ever before of the freight stock, according to the needs of the moment.

The statistics and graphs printed with this paper record the measure of operating efficiency which has been achieved. In railway freight operating, the real measure of productivity is the ton-mile, and of effort the engine-hour, and the figures (see also Figure 1) show the improvement that has taken place since unification in 1948, and a comparison with pre-war :—

	Year	*Net Ton-Miles per Total Engine-hour*
Pre-war	1938	461
After Unification ...	1948	547
	1949	563
	1950	578
	1951	595
	1952	605

Other indices of operating efficiency show similar steady improvement, but I will not weary you with detail, important though it may be to the final result.

On the motive power side, accurate records have been established in all regions to show the availability of locomotives so that individual depot performance, as well as that of districts and regions, can be compared. The result has been that, since 1948, the percentage of locomotives available for traffic has risen appreciably. Another test of depot efficiency is the infrequency of locomotive casualties. Here again a systemised method of reporting and recording has enabled comparison between all regions to be made.

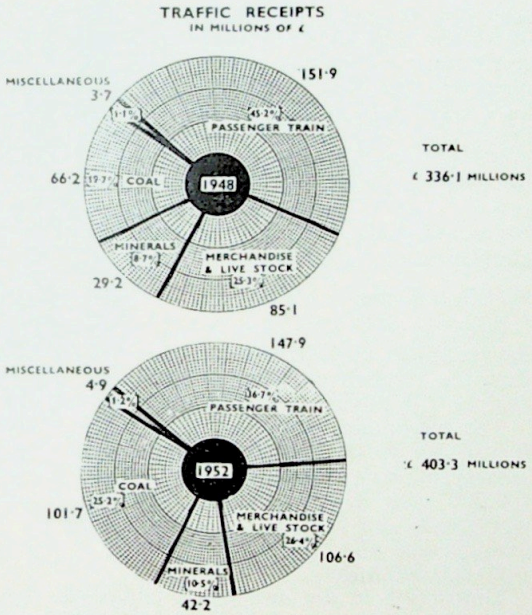


Figure 5

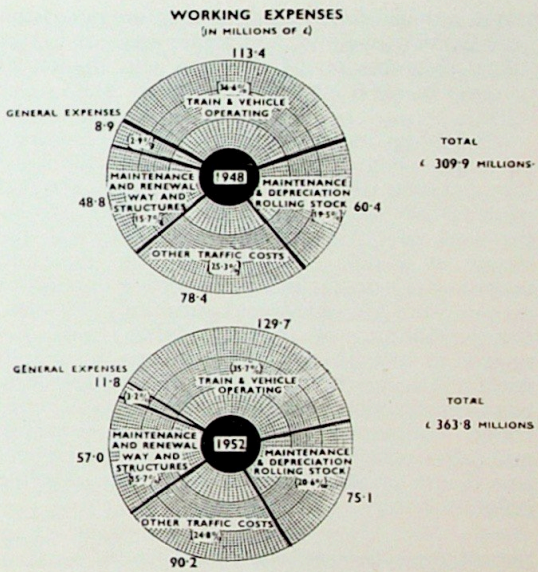


Figure 6

The printed figures show the improvement made :—

	April 1949	*June*	*Improvement* %
Total mechanical casualties per four weeks ...	2,314	(1952) 1,136	51
		(1953) 1,059	54
Engine mileage per mechanical casualty ...	15,845	(1952) 32,183	103
		(1953) 32,878	107

Concurrently with this progress it has been possible, without sacrificing efficiency, to close a considerable number of the smaller locomotive sheds.

Wider use of traffic surveys

On the commercial side, the development of transport business involves of course a thorough knowledge of the requirements of trade, industry and the travelling public, and of the means of creating demand for travel. Careful studies have, therefore, been made of the principal industries, and traffic surveys carried out. While, of course, similar work was performed by the separate companies, and the regions now make a substantial contribution, it was not possible before, as it is essential today, to bring a national outlook to bear and to study, for example, particular industries without regard to geographical boundaries.

It has always been the duty of the commercial department to provide the means of contact with individuals, firms of all sizes, and national associations. The scope has now entirely changed. Several large industries such as coal, electricity, and gas, which are large users of railway transport, are working under unified control and they expect to deal with important rail transport matters on a country-wide basis. Coal particularly is a first priority, which it was not before the war when it was plentiful. Altered trends of economic life have also necessitated closer and more frequent contact with Ministries and with national associations of industries and trades under private enterprise, who also expect on many important questions, to deal with British Railways as a whole.

The largest section of commercial expenditure is incurred in terminal and cartage working, but time does not allow me to do more than mention that important changes have taken place in freight terminal technique (though, through capital and other restrictions we have only been able to make a start on this). One hundred surplus goods depots have been closed and much overlapping cut out. The conversion of our large cartage fleets from horse to motor, and the increase in efficiency and economy by this and other technical improvements has been a major achievement.

Most of the 989 million passengers who travelled on British Railways in 1952 were able to do so at less than standard fares. Since 1948, when the emphasis was still towards discouraging

travel, reduced fares and other facilities have been progressively restored, and passengers now travel longer distances than before the war, the actual increase being from 15.94 (1938) to 20.92 miles (1952).

Unification has also enabled developments to be made which have facilitated and cheapened the operation of the marine fleet, and at the end of 1952 119 vessels were doing approximately the work of 152 before the war. Although the design of a new vessel has still to take into account the port facilities and service conditions on the route for which she is primarily intended, the possibilities of moving vessels from one region to another has at last been turned to reality. This has been of great benefit in avoiding new construction, meeting seasonal and other traffic requirements, and in covering overhaul and repair periods. Many examples can be given, few if any of which would have been possible before the war.

Standard accounts and statistics

If accounts and statistics are to serve their purpose as an important tool of management, it is essential that when comparing results the terms used should be standard and the definition of those terms should be well known. To this end there has been a continuous movement towards the adoption by the Regions of uniform terms, definitions and accounting principles.

Among the benefits which have, in these fields, followed unification and central direction are cutting out inter-company apportionment of receipts and expenditure ; closer control of capital expenditure ; better use of cash resources ; introduction of budget forecasts of revenue receipts and expenditure, and comparison with actual results ; and the introduction of a large measure of uniformity in station accounting procedure. These are examples ; there are many more. Modern industry does all of these things as a matter of course—we cannot afford to do less.

Uniform system of public relations and publicity

A great public service such as British Railways requires, by the very size and variety of its activities, a special organisation to ensure that its activities—in particular its commercial facilities—are made sufficiently known, and are interpreted in the most effective way. Opportunity was taken to set up a public relations and publicity organisation which follows a uniform pattern at the Executive and in each region, closely linked to the top management at the Executive itself and the Chief Regional Officers respectively.

The work of the public relations and publicity departments includes, among all the normal activities, the responsibility for the appearance of stations and properties so far as publicity and commercial advertising material and name and direction signs are concerned. Over 600 stations have been re-signed inside and out on modern lines since 1948. The public relations and publicity department provides a 24-hour service for press inquiries and the requirements of the B.B.C., and it produces the British Railways Magazine, in six Regional editions, with a paid circulation of 116,000, and still growing.

Technical achievements

Great as they have been, I will only touch on the technical achievements, because I am sure that the respective technical institutes will be dealing with them in the detail that they deserve.

The mechanical and electrical department of British Railways is probably the largest single engineering unit in the country. It employs over 100,000 men and women in widely scattered workshops and depots and is responsible for a maintenance and renewal expenditure of nearly £100,000,000 a year.

Unification of the four group companies into this single unit opened up great possibilities of rationalisation. Workshop facilities have been co-ordinated and there is now common use of these resources in construction and repair. Cylinders, for example, are cast at Crewe for locomotives building at Horwich, Doncaster and Swindon ; Eastern and North Eastern region workshops are producing boilers for Horwich (L.M. region). York makes vestibule gangways, and Swindon carriage door pressings, for all regions. These are but a few of the ways in which railway workshop facilities have been co-ordinated and used for the benefit of British Railways as a whole.

Locomotive types were individual to the former main line companies and when the railways were unified, no fewer than 400 types existed. By new design, all the operating needs of British Railways can be met by twelve classes of steam locomotives, with a small number of types of diesel and diesel-electric locomotives. It is unnecessary to stress the important economies in manufacturing costs, stores stocks, interchangeability of parts and repair procedure which can thereby be obtained, but it is only gradually that the benefit of unification and standardisation will be felt.

The figures of the cost of locomotive repairs per mile run illustrate the energy with which the cost problem has been tackled :—

(1) Repairs at main works—8.845 pence per mile in 1952 compared with 8.026 pence in 1948 (9.577 pence at 1952 price level).

(2) Repairs at motive power depots—4.767 pence per mile in 1952 compared with 4.390 pence in 1948 (5.180 pence at 1952 price level).

Taken as a whole, they represent considerable economies every year.

The average number of locomotives under and awaiting repair in workshops has been reduced from 1,400 to 1,000, while the number of repairs it has been necessary to carry out in a year has dropped by nearly 1,000 from 1947.

Diesel railcar programme

Diesel and diesel-electric locomotives are being increasingly used by British Railways, and in shunting yards they are fully justified. In addition, diesel railcars, made up in trains of from two or more units, as required, are being provided for passenger service wherever conditions are suitable for their economical use. In other spheres such as main line traction, diesel and gas-turbine locomotives are still on trial. In this small country of short runs, exceptional operating advantages must be proved to overcome the much higher first cost. The issue will take time to determine. There is nothing in the technical side of these locomotives on which B.R. engineers are not fully informed.

Coach and wagon work represents an item of major expenditure. Under unified control it has been possible to concentrate the production of individual types of coaches and wagons at the works that are best equipped to build them, with the resultant economies of long runs of production. We have been doing, in fact, what Austin and Morris and others have done.

New standard features in the design of British Railways passenger-carrying stock, affording the public a higher level of constructional safety, include " all-steel " construction (in which underframe, body framing and roof and panels are of steel, with wide use of welding) ; the use for corridor stock of " buckeye " automatic couplers and pullman gangways which tend to hold the train together better in case of accident, while doubling the resistance of longitudinal shock of any pre-war company design.

By central direction and improved repair procedure, the coaching stock under and awaiting repair has been reduced from 7,500 in 1947 to 5,400 in 1952. Translated into money these results, coupled with the savings effected by standardisation of parts and repair procedure, represent many millions of pounds.

British Railways took over from the Southern Railway the largest suburban electrified system in the world. On a part of that system, conversion of power supply involving a change-over from 25 to 50 cycles, and the re-equipment of rolling stock, will enable much-needed ten-coach trains to be run in parts of the London suburban area, where before only eight-coach trains could be operated. The whole scheme, costing some £12 millions, will be completed in 1954.

Since 1948 the electrification of the Liverpool Street-Shenfield line, begun by the L.N.E.R., has been completed, while the first electrified main line to carry heavy freight as well as passenger traffic is being developed over the Pennines between Manchester and Sheffield. The Lancaster-Morecambe-Heysham line has been re-equipped with a new high-voltage 50-cycle alternating current electrified system which admits the use of lighter feeder equipment than had previously been considered practicable.

British Railways are planning to go ahead with schemes of electrification as soon as capital restrictions are removed. But to one who saw—and took part in—the electrification of a large part of the Southern Railway, our lack of progress today due to restrictions on capital expenditure, is heartbreaking.

Despite a more intensive use of the track than in any other country in the world—19,500 trains run over each route mile in the year—it is today in far better shape than it was in 1948. Maintenance fell seriously into arrears during the war, and recovery was retarded by shortages of materials and labour and by severe restrictions on capital expenditure.

Outstanding developments have been :—

(1) The intensive application of mechanisation of track equipment, which has minimised interference with traffic, used less man-power and effected substantial economies. In this, British Railways has, I think, led the railways of the world.

(2) The adoption of standard flat-bottom track in two types. Flat-bottom is 59 per cent. stronger vertically than bull-head and 136 per cent. stronger laterally, and each mile needs about 16,600 fewer components.

(3) Classification of all running lines throughout the country which, based on density and speed of traffic, determines the types of permanent way material to be used.

Altogether, new organisation, new methods and standard practices have made savings now running at the rate of £1.5 million in respect of day-to-day maintenance, and £2.05 million in respect of renewals of permanent way. And this without sacrificing the standard of maintenance or safety.

Since 1948, British Railways have concentrated on the rapid extension of track-circuiting and colour-light signalling. There are now 6,700 colour-light signals compared with 4,300 at the end of 1947. Trials of a modern system of automatic train, or " warning ", control capable of use with steam or electrified lines have now reached an advanced stage, and when fully implemented on the principal main lines of Britain will have cost £17¼ millions, with an annual charge of £2¼ millions.

A single research department was established in 1951 to deal both with scientific and operational research problems throughout British Railways. Of the 200 scientific and technical staff employed, more than a third possess university or professional qualifications. The independent position of the department, responsible direct to the Chairman, has enabled it to give impartial advice, and to act as a referee between conflicting views. British Railways' central research organisation plays a lively and vital part in railway development, and about £250,000 a year is spent on it—apart from that spent by the departments themselves—which nevertheless is inadequate by modern industrial standards for a business of our size.

New staff problems created

The human element in an efficient railway service is as important as it is in any other industry, and, because of the large proportion of railway staff who are in direct contact with the public, more so than in many. The unification of railways in 1948 presented new staff problems arising from the fact that the change had been brought about as a result of political action, that it was a complete change substituting national for private ownership, and that it affected a large body of people numbering some 650,000. Of these, each had his own aspirations and loyalties ; each, no doubt, had his own ideas of what nationalisation was going to mean to him personally.

Of the important staff developments I will mention one—the Joint Welfare Advisory Council composed of representatives of the Railway Executive and trade unions, set up in July 1948. The council keeps under constant review the general welfare of all grades of the staff. About £2¾ million have been authorised since January 1951, to provide better staff accommodation and amenities, and no one who knows the facts can doubt that more will be needed before the arrears in this important factor in staff contentment are overtaken.

The problem of the attitude of railway staff generally to the nationalised railways, which the great majority of them so strongly advocated for years, is one of the most complex and difficult exercises in human relationship possible. Time does not allow me to develop it tonight, for it fully merits a discussion on its own. I must content myself with saying that though much has been done which is highly encouraging, it will take a lot more time, and much education, patience, and goodwill on both sides before the relationship on the railways between management and staff can rest on enduring understanding. But I would like to acknowledge the broad outlook which the leaders of the trade unions we deal with have nearly always shown. In these last six years of trial and error it has been a real pleasure to work with them.

That in the hearts and minds of all railway officers and their staffs there has not, as yet, been developed the same feelings of pride and loyalty to this new " British Railways " as was such a strong cement in the pre-war years in the strength of the former group companies, is true, and understandable. It was just the same—if not worse—in the twenties. The railwayman, like most of his fellow-countrymen, is slow to accept new loyalties, and equally slow to abandon them once accepted. That is one of our national characteristics, and one of the best.

Centralised purchasing

A fine piece of industrial reorganisation, which I can only mention in passing, is the centralisation of purchasing and standardisation of articles done with the plain and deliberate aim of saving money. With an annual stores bill of £100 million, excluding coal, there is something to cut at. The paper and printing department alone have saved over £250,000 a year by ruthless pruning of forms and elimination of numerous varieties of coloured inks and qualities of paper.

I have but sketched the main outlines of each major activity ; to do more would take up more of your time and attention than even a new President has a right to demand. No more—and no less—is claimed in the record here presented than that swifter progress towards modernisation, unification, and economy has been made relatively, in fewer years, than ever before in British railway history. The organisation was designed in the first place to make this progress possible, and in this respect it has succeeded.

Well, there is the record, as truly and objectively as I can put it. After over two and a half busy and unforgettable years as Chairman of the management body of the railways of this country, I can look back now and take stock, and I invite you to do it with me.

I believe that in spite of all our problems the record of British Railways in these first six years is a good one, and that time will prove it. Some of the more important successes of railway unification, particularly under the Chairmanship of my distinguished predecessor Sir Eustace Missenden, I have spoken of ; the benefits are now beginning to flow from them at the rate of £16 million a year saved. They are solid, they have been proved, they are recognised by the principal railway administrations of the world, and by many industries and firms in this country who know the facts.

Centralisation and Decentralisation

In whatever form our State-owned transport system is finally organised, I have little doubt that those in charge of it will find it necessary to insist on a firm centralisation of financial and charging policy, from which all else must follow, on a realistic control of its traffic handling, of the central design, manufacture and manipulation of equipment, on a code of clear and universally applied standards of engineering and technical services, and most certainly of research. Not to do so will be to deny the rightness of everything that the rest of British industry has been doing for the last decade or more. Call it rationalisation, standardisation, centralisation or what you will, it is surely an efficiency "must" for industrial Britain, including the railways, in its struggle to maintain a high standard of living for its crowded millions. It will never be popular, or properly understood, and there will always be voices in this highly individual race of ours crying for the past, for the days of the little man and his freedom to do what he damn well pleased when he damn well liked.

And having thus set forth my belief in the sheer necessity for clear and courageous thinking on this question of centralisation of essentials, and of transport as being, at its best, an over-all service of rail and road partnership, let me turn the penny over and tell you what I see on the other side. I see great and prosperous British industries and corporations whose insistence on and control of central necessities is no less strong than ours has been, but whose existence covers far more years than we have been allowed ; and I see that these have found also the way to decentralise to a remarkable degree in all else, thus liberating the forces of initiative and ingenuity that have always been so strong a feature of the British race. It is here I feel that we on British Railways may have stumbled, and it is here that the new Commission have the chance of their lives to profit by our experience.

This stumbling—I will not call it failure, for that would be untrue—was perhaps inevitable ; so much of our time has, willy-nilly, been taken up with sorting ourselves out, comparing the varying practices of the four companies in earnest endeavour to find the best and apply it generally, and above all in struggling every day of every week, month and year with shortages of men, materials and money alike, and trying to keep pace with the industrial and social revolution of our time.

And yet when all is said and done I feel that we have somehow failed to make either our staff or our public as a whole happy about British Railways. Whether it was possible to do so in six such difficult years I doubt, but there it is, and we should try to see where we have gone astray, and why.

Watertight compartments

For what it may be worth, I will venture my belief, being wise after the event. First, the framers of the Transport Act of 1947 made a serious error in putting rail, road, catering and docks in watertight compartments ; in short, in setting up a group of new Executives. In their endeavour to avoid over-centralisation at the Commission, as it turned out they made it much more difficult for us to be what we ought to be in this modern age—transport men.

Second, we were plunged on the railways into a system of departmental, or "functional", control to which we had not been accustomed, which we did not wholly understand, and for which we were not ready. True, it is a system which has worked well abroad, particularly so on the S.N.C.F. in France and on some of the big American and Canadian railroads, as I have personally investigated and observed. It will be perfectly familiar to the new Chairman of the Commission, for as a soldier he has lived with it for years. Substitute G.O.C. Eastern Command for C.R.O. Eastern Region, and War Office general staff for R.E., and you have the parallel all down the line. The functional system has real merits if it is loyally and properly administered. But it takes a lot of learning, and it demands a degree of self-sacrifice and self-discipline which is hard to acquire, particularly from those of us who formerly served compact companies individually managed and with long and famous histories and traditional methods behind them. That it has worked so well in many parts of British Railways is greatly to the credit of the officers concerned, and let me say here that at Headquarters and in all the six Regions there have been shining examples of how the system should and can be made to work.

Nevertheless, in retrospect I think it imposed too great a strain in these early, formative years, and as events have turned out, it might have been wiser, and given us all a better send-off, if the approach to it had been more gradual, making a high degree of centralisation of major matters our ultimate aim instead of an imperious and urgent necessity.

The status of the Chief Regional Officers—an unimpressive title—was difficult at times. I know because I have been one, twice over. The criticism of those who either did not, or would not, understand the system was that these important officers could be over-ruled by the Executive and that as the successors to the General Managers this was all wrong. The truth is, of course, that the C.R.O.'s were not, and were never intended by the Commission to be General Managers under the 1947 organisation. Whether

that was right or wrong is not the point. The general management was vested in the Executive, acting as a corporate body. The C.R.O.'s, as I have said earlier, were their agents, appointed to co-ordinate the Regional Officers and to see that the Executive's decisions were carried out. In recent years we have gone a long way towards giving the C.R.O.'s more authority to lead and control. They have performed their difficult task with unselfish endeavour, and they are entitled to the thanks of the public and of the railway they have served in such an era of experiment and change. And now they are to become managers, which they must be if maximum decentralisation is to be achieved. I wish them all success, and if they will put first things first, I have no doubt that they will rise to their great opportunities.

As to my late colleagues on the Executive, may I take this opportunity publicly to pay my tribute to them for all that they, with their highly qualified Headquarter Officers, have achieved, in difficult and changing conditions ; for their stoical behaviour in face of often serious misrepresentation, and their kindness to me at all times.

There are, of course, a number of different ways of directing and controlling any large business, and much has been written on this absorbing subject. A recent survey in the American magazine " Fortune " is well worth study. However, since the Statutory Scheme of railway management is now to be worked out by the Commission and submitted to a varied number of bodies before it goes to Parliament, it would be improper for me to try to prophesy about it.

Public and Private Enterprise under the new Act

But we may consider for a moment the general transport picture in Britain as it will be under the new Act. The State, through the Commission, will control the whole railway network, which continues to perform today the largest single volume of movement, freight and passenger, in the country. It will continue, without doubt, to offer a national road transport service, albeit smaller than at present and without monopoly—if indeed it ever really had more than the shadow of one. It will own and administer a large group of docks, ports and waterways, a vast hotel and catering business, a network of omnibus and coach services of great size and high efficiency, and remain in active partnership with another group equally large and just as efficient ; and it will continue to be responsible for that amazing mass of human movement which we call London Transport.

In competition with this immense State enterprise, and with itself for freight and passenger business almost everywhere, will be Private Enterprise—lively, confident, individual, impatient of control, as yet uncertain as to what it really means to accept in the way of transport obligations, weak and powerful in finance, ignorant and wise in the science of transport theory and practice, and in its operation varying from the very good to the by-and-largely inefficient.

In such a situation, is it likely that those who will have the onerous responsibility for directing the State's transport services, representing as they do so great a capital investment in Britain's industrial equipment, could afford to forgo—even if they wanted to—the undeniable economies which standardisation of manufacture and technical practices can offer, economies which every great industrial concern in America and Britain has been enjoying for years ?

The struggle for traffic and revenue will be intense, and unless we are luckier than perhaps we deserve to be, it might well be the old sad transport story of lopsided competition, with the dice loaded against those who must accept for all time the national obligations to carry and to serve, to take the good with the bad, and on the side of those who can pick and choose, the best of whom will survive because in time they acquire a sense of national service and pride of performance second to none, the worst of whom will swell the old queue in Carey Street. Sir Reginald Wilson, in his notable paper to the Congress of the Institute in Scotland last July*, has put this problem in clear focus for us.

In this struggle Parliament and the nation ought to take a keen interest, for they are the shareholders whose savings will be at stake. The present Minister of Transport, Mr. Lennox-Boyd, has done his best, in giving the new charging freedoms to the railways, to make the competition fairer than it ever was before, and I believe that transport history will remember him in gratitude for a wise and courageous step, unique as yet among the major countries of the world.

Yet by itself this may not be enough. What if the State enterprise, with its obligations for minimum wages and pensions, its high standards of staff welfare and its inescapable national obligations of which I have spoken, fails to make ends meet ? Will there then be subsidies, followed inevitably by restrictive legislation against private enterprise transport which has made the subsidies necessary ? Will the transport legislative clock grind slowly back to where it began in 1947 ? Or will Parliament try to cut its losses and sell off more, or all, of its transport assets ? Who will bid for the railways in such an auction ? Are these the ghosts that will haunt the corridors of Berkeley Square and Marylebone Road ?

Let no one say that this is a fantastic adventure

* *Journal*, Vol. 25, No. 5, July 1953, p. 145.

in pessimism, because it could happen, and in this Institute it is our duty to study and discuss the changing trends in transport. The possibility of financial breakdown is always present from the moment the State decides to limit its investment to only one part of a national industry, so to some it will seem that the 1947 approach was logical and theoretically sound.

Monopoly and Common Sense

Yet there must be many here tonight who feel an instinctive antagonism towards complete transport monopoly. Theory may be against them. Those who have been able to compare at first-hand the London Transport monopoly of Lord Ashfield and Frank Pick—yes and of Lord Latham—with the wasteful effort of the urban transport systems of Melbourne and Sydney, for instance, know that here in London experience is against them too. Yet this antagonism, this refusal to believe implicitly in the superiority of the State as universal transport provider, remains, and it is because we in Britain often score our greatest successes by illogicality, by compromise, in short by common sense, because we have a healthy dislike and distrust of extremists of any kind, that we may see in the new Transport Act the opportunity for the best of both transport worlds to serve the nation best. Surely that is a challenge to us in transport worthy of our best endeavours and our most courageous and optimistic spirit ? Ought we not to believe that a well-run State rail and road transport system, operated as one service and not as two, with all the strength and cohesion of single financial ownership behind it, with the stimulus of competition to spur it on, can and will hold its own and pay its way ?

For which of us does not agree that competition—if it be on equal terms—spurs on the average man ? Theoretically, competition in transport can be argued out as being wasteful, which it often is, and therefore extravagant and therefore unjustifiable. Yet how much did our Southern Railway's enterprise owe to motor coach competition ! And how many road operators bit the dust when under Sir Herbert Walker's inspired leadership we electrified the railway, and ourselves into the bargain !

Well, as Sam once said on another occasion, " let battle commence ", and may the users everywhere be the victors, for in their satisfaction lies our own prosperity.

These are of course my own thoughts, and I freely admit that in places they are contradictory. I am not ashamed of that, because we are all still in the exploratory stage of these great problems, and we should beware of rigidity of thought. The next year or so will be most instructive, and we all hope that wisdom will lodge with those whose responsibility it is to make the master plan, for we simply cannot contemplate another major upheaval in the next decade. Rather, we should now be permitted to proceed by trial and error to find our own (and the user's) salvation.

Parliament's responsibilities

So I believe that from this Institute of Transport there should go out a word of friendly advice to our legislators that if they cannot now compose their ideological differences as to how the nation's transport system should be organised, then the responsibility for inefficiency resulting from disappointment and frustration at all levels will be largely on their shoulders.

In Britain we live by, and wholly believe in democracy. In the years since the war, transport men have conspicuously shown that they yield to none in their sense of public responsibility. But surely we all have the right to say to Members of Parliament that we expect them to approach our problems with a greater sense of reality than some of them at least have shown in recent years ? Comment happily is still free, but sometimes it has seemed to me that facts have been too sacred even to be mentioned in public places. To that small band of parliamentarians on both sides and in both Houses who have made transport their particular study, I would like to pay my tribute. It is vital to our industry that these should be listened to in Parliament, that their influence should grow, for they, more than any Select Committee in my view, can become both the watchdogs and the free spokesmen for transport, for we have sadly missed the director-M.P.'s of the pre-1948 era.

Now that so much of the nation's transport is to stay State-owned, no one in this hall tonight would under-estimate the importance of the fact that Parliament must keep itself informed of what we are doing and how we are doing it, and periodically pass judgment on our stewardship. It is the duty of all who hold high responsibilities in our industry to realise this, to co-operate, to be forthcoming in all our dealings with those who represent the nation.

I am sure that in this wise and experienced community of ours we can and we shall find sound and enduring solutions of this problem. On our doing so depends nothing less than freedom from constant uproar, and change for change's sake, and uninterrupted use of the years to come in which to perfect our service to the nation by intelligent thought, hard work, and modern technique ; above all by earning our keep, owing nothing to subsidies, and offering to all who give their working lives to transport the happiness that comes from a task adequately rewarded and honestly done.

Road Passenger Transport and Economic Laws

E. R. L. FITZPAYNE M.INST.T.

Paper read before the Scottish Section on February 27th 1953. The Author is General Manager, Glasgow Corporation Transport.

Our industry has been profoundly shaken by economic happenings during the past ten years. We can, however, only form our opinions and make decisions on past experience, and it is doubtful whether economics will assist in assessing future trends. In fact, *The Economist* once wrote :—

> " Economics is a curious science, if indeed it is a science at all. The investigator who digs down through the text book generalisations in the physical sciences finds at their root a series of facts, checked by carefully controlled experiments, and as accurately known as human ingenuity can compass. The investigator who does the same for economics, penetrating the smoke screen of curves and mathematical symbols, will find not facts, but a series of elementary psychological assumptions checked, if at all, by crude common sense. And, like most assumptions of this kind, he will find that most of them are wrong. . . . It is this lack of a solid factual basis which has brought it about that, while the Army is alleged to be always winning the last war, economists are almost invariably engaged in defeating the last slump. The characteristic of a genuine science is that its practitioners can tell the practical man what to expect around the next corner. Economists may sometimes do the same ; but as often as not they have to wait to formulate their theory until the practical man has himself turned the corner ".

We must readily admit, therefore, that Economic Laws are not as clearly defined as scientific laws, and we are further bewildered by the two schools of thought which exist in the realm of economics—those who argue that the government should keep out of practically everything, and the Marxists who consider that the government should interfere in practically everything.

The problems encountered in municipal transport are peculiar in that the employers, despite the known laws of economics, are constantly anxious to grant high wages and good conditions to the employees and at the same time exact the lowest fares possible from the passengers.

One of the first examples quoted in text-books on economics is the economic value of water and its transition from an " economic " good to a " free " good, the three stages being :—(*a*) The owner who digs his own well ; (*b*) the sale of water when it is scarce ; (*c*) the community taking common action to procure water.

From the last stage the economist considers those things as " public goods ", which are supplied free to the public. Indeed, economists are agreed that the more free goods there are the better off is the community.

Free Transport

For these and other reasons there has been an attempt to translate transport into a public good or a free good. In recent years there has been notable hesitancy on the part of various municipalities to increase fares, and in many cases deficiencies in the transport system have been met from rates. Transport is described as a social service, and we find that people living in outlying estates resent the comparatively high fares which the distance from their work or community centre necessitates. I believe, however, that transport cannot be regarded as a social service and that, in consequence, it is wrong to class it with such things as water, parks, education, roads, sewers, libraries and other activities which the community at large pays for so that they may be free to the individual.

The trouble with the expression " free goods " is the impression created that something is being obtained for nothing : water is the best example, but in Glasgow the expenditure in the Water Department last year was £743,000, representing a domestic water rate of 5½d. in the £, whilst the total capital expenditure amounts to £7½ million. The advocates of free transport point to the savings that could be accomplished by the abolition of the complications from the time the passenger renders his fare to the time the revenue is ultimately banked. They overlook the difficulty of providing unlimited transport : further, it does seem inequitable that those persons who do not use the public transport would be required willy-nilly to pay a share of its maintenance through a special rate.

It is equally unfair that special concessions should be granted to particular classes of people such as workmen, old age pensioners, etc., and it is obvious that the practical method is that of charging a fare based on the cost per mile to every passenger, regardless of his circumstances.

Recently we replied to a questionnaire from a large transport undertaking to indicate the average increase in fares since 1939. The formula

for the calculation was propounded by the undertaking itself as follows :—

> The term of measurement is to be the average charge per passenger-mile. The passenger-mile figure is arrived at by multiplying the value of the tickets sold at each fare by the average miles given per £ for each fare denomination.

As a result our figures were :—

	Average charge per passenger-mile			
	Pre-war.	*Present.*	*Increase.*	
	d.	*d.*	*d.*	%
Tramways ...	.65	1.32	.67	103
Motor-buses ...	.69	1.22	.53	.77
	.66	1.25	.59	89

Whilst the increase in fares has been substantial the increase in cost of materials is very much greater. Averages are always deceptive, and it would be difficult to convince a person who before the war paid a fare of ½d. for one stage and who today must pay 2d. that the average increase is only 103 per cent. Because of the small revenue derived from long distance passengers, municipalities tend to limit the higher range of fares, but again, to be equitable, these fares should also be based on the mileage.

Reverting to those who argue that transport should be on the rates, it should be understood that almost as early as the division of labour, a medium for exchanging various products came into use, and it is a good thing that the value of transport should be a known factor, particularly as it is such an important item in the cost of living. We know from the definition of value that there can be no general rise in values and no general fall in values, values being a term expressing the relation of exchange between commodities. We know, too, that the value of money is inverse to the level of prices and that whereas at present prices are high, the value of money is low. This simple law, however, is not understood by those who argue that transport undertakings should still be operating at pre-war fares : it should be obvious to them that the pre-war penny is today equivalent to at least twopence and that, in consequence, fares should be twice as high as in 1939.

The Flat Fare

There are those who suggest that the American system of a flat fare is the answer to our problems, and the City of Dundee is engaged on an experiment in this direction. It is not, however, a sound proposition, since an average must be struck so that as many pay less than they should as those who pay more than they should. A flat fare is convenient from a collection angle, but even in America the increase in fares which has taken place in multiples of the original 5 cents has led to such a high fare that short distance passengers have been completely eliminated, and they have now had resource to a complicated zone fare system. The flat fare being so high has compelled the Americans to adopt a transfer system, and, whilst we all know as operators the objections to transfers, if we accept the principle of charging fares on a rate-per-mile basis then we must also accept the case for transfer tickets.

The flat fare, of course, has only been made possible because of the monopoly condition of transport in America, and this is a strange occurrence in a country which talks so much about private enterprise.

Monopoly

We must accept the fact that in this country passenger transport is a monopoly accomplished by the Road Traffic Act, 1930, and, whilst with every increase in fares we raise the spectre of the law of diminishing returns, we forget that the law of demand and supply specifically states that the demand for necessities is inelastic. Thus the economist will quote the example of bread, wherein the same quantity will be purchased whatever the price. Likewise passenger transport is a necessity and its demand is, therefore, inelastic. We realise that higher fares may make people more careful in their travel and thus concentrate our loadings at the peak hours, and we have warned the platform staffs from time to time that this must lead to more disagreeable duties.

Inevitably, up and down the country, bus undertakings have been busy during the past two years opening up frequencies, resulting in longer waits for the passengers at stopping places and more heavily loaded vehicles. This has met with some opposition from the unions who, of course, on this occasion have the public on their side. A more dangerous tendency, however, has been an argument used by the unions that wages should be regulated according to the size of vehicle : this argument has appeared for the first time in our Joint Industrial Council when considering the wages which should be paid to one-man operated buses. The union argued that buses over 40 seats should be paid at the rate of 20 per cent increase, but the J.I.C. ultimately agreed that the rate should be plus 15 per cent, irrespective of the size of the vehicle. In America there are no two-man operated buses on mass transit lines, and there the average amount allowed to the driver to compensate for the additional work involved in one-man operation is 5 per cent. It is unfortunate that we in this country have fixed on a figure of 15 per cent, as it will make one-man operation more difficult to justify. The flat fare has made it easier for the Americans to operate their one-man vehicles. These vehicles are all single-deckers and are provided with a separate entrance and exit, with overload

standing capacity. The only real solution to the peak hour problem is to have vehicles with overload capacity, so that an undertaking can substantially meet peak-hour traffic without requiring materially to increase the number of vehicles on the road.

Glasgow has experimented with a Continental single-deck trolleybus for some time now. The experiment has been justified in that there has been a complete elimination of platform accidents, and the anxiety of overturning which exists everywhere with double-deck vehicles does not exist. This single-deck vehicle operates on the same schedule as the double-deckers and, although only a 27-seater, brings in the same amount of revenue, due to its capacity of 40 standees. It is unfortunate that the Ministry of Transport will not permit this country the same latitude regarding length as in other countries. A 35-foot single-deck vehicle would I believe, almost supplant the existing double-decker. We have also experimented with large capacity single-deck motor-buses with a mobile conductor, but this has not been completely successful, and it would appear that the seated conductor, past whom all passengers must enter the saloon, is a more satisfactory method.

As already mentioned, the fixing of fares, the reduction of frequencies and other actions which are resisted by the passengers are largely accomplished because of the monopoly powers possessed by passenger transport. It may be suggested that the monopoly is not complete, since there is competition from railways, private cars, taxi-cabs, bicycles, etc., but it is doubtful if any monopoly is quite complete.

In economics it is accepted that a monopolist will usually settle his price rather than his supply, since a monopolist can make the supply larger or smaller at will and since, too, if gain is the only objective he will naturally fix his terms to obtain the largest net revenue. However, it is because of these monopolistic dangers that passenger transport is so strictly regulated and in many cases operated by municipalities. Nearly a hundred years ago the economist, John Stuart Mill, propounded the theory that "When a business of real public importance can only be carried on advantageously upon so large a scale as to render the liberty of competition almost illusory, it is an unthrifty dispensation of the public resources that several costly sets of arrangements should be kept up for the purpose of rendering the community this one service. It is much better to treat it at once as a public function ; and, if it be not such as government itself could beneficially undertake, it should be made over entire to the company or association which will perform it on the best terms for the public".

In the past American cities have even encouraged competing tramways, gas companies, telephone companies, etc., with the usual promises of lower charges and better service. However, even in a country wedded to private enterprise this has not worked out in practice, and invariably the competitors have got together and a monopoly inevitably ensues. This country has realised from an early date that with public bodies regulation from above is a more satisfactory method than competition. We should, however, accept the fact that a new enterprise, with all the dangers involved, is more likely to succeed under private enterprise and is only ripe for public control when further development is unlikely and when, in fact, it is established. We should, too, always be on the alert for the lack of enterprise that often accompanies monopoly powers.

If we accept public control we do not necessarily accept the principle of government or municipal control. The danger with this form of control, which has become so evident in recent years, is the interference in ordinary business methods for political ends. One satisfactory solution would appear to be the Australian method whereby each municipality appoints a commission with sole powers to operate its transport undertaking for a period of years in the best interests of the community. A real danger of public control is that lower fares or higher wages can be promised by the politician as vote-catching devices, and there is also the constant pressure on the politician to accede to demands which for economic reasons should be resisted. Another advantage of the Australian system has been the elimination of parochialism. There it is readily appreciated that passenger transport cannot be restricted by artificial municipal boundaries, and this is in keeping with the wise provision of Clause 14 of the 1922 Glasgow Corporation Act, which granted the Glasgow Corporation power to provide motor-bus services along any route outwith the city not being more than ten miles distant from the city boundary.

Many municipalities throughout the country are engaged in rehousing their people outside their boundaries, and these people should certainly enjoy the benefits of the municipal transport system. There is also no reason why municipalities should not be permitted to operate contract carriages. The present system whereby fleets of municipal buses are laid up in the garages every week-end, when the public are clamouring for transport into the country or to the coast, is quite untenable.

Fares and Wages

The continual rise in wages since 1940 is a matter which must cause concern to us all, and the inevitable result of such increases, viz. higher fares, is met with protests by workpeople,

whether through Trades Councils, Trade Unions or Tenants' Associations, in every part of the country. These protests have had the curious effect of compelling the Transport and General Workers' Union to conduct a campaign throughout the country in which they have complained of the unfairness of other trade unions protesting against increases in fares whilst accepting increases in such things as coal, gas, electricity, etc.

Wages in our industry are related to three important factors :—

(1) The index of retail prices.
(2) The index of rates of wages.
(3) The wage movements in other industries.

The index of retail prices is quoted regularly in the Ministry of Labour Gazette. It is a weighted figure compiled from the prices of a fixed list of goods and services which make up the principal expenditure of the working class. The index is related to June, 1947, which is taken as 100. At present the figure is 138, and a hopeful sign is that this figure has not increased since last June.

The wage rate index is also quoted in the Ministry of Labour Gazette, and at December the index is 132. Again the figure is based on a datum of 100 at June 1947.

In trade union negotiations there has been a tendency to quote the index number of wage rates published regularly by the Bulletin of the London and Cambridge Economic Service. The index is based on a datum of 100 in 1938, and at June, 1952, was 231. This table gives wage rate indices for 1914-1952, and it is interesting to note the following indices :—

1914	50	1938	100
1918	94	1944	146
1920	141	1950	197
1924	96	1951	216
1933	90	1952	231

The third factor is the wage movements in other industries. Here we are embarrassed by the attitude that government and municipal employees should be paid higher wages than those paid by a private employer. Thus in our industry we are constantly faced with the wages paid by the nationalised road haulage, electricity or gas industries and the wages paid in the Municipal Cleansing or Highways Departments. What is not clearly appreciated is that these higher wages paid to public employees must be paid for by the rest of the community.

There are two National Councils in our industry, one controlling the wages and conditions of the municipal transport worker and the other those of the private bus worker. The main difference between the policy of the two Councils is interesting.

The private bus Council frames a model agreement which is elastic and subject to local negotiations. It can safely do this, knowing that any local agreements will be on purely business lines and that no reasons other than the best interests of the particular company will enter into such agreements.

The municipal Council, particularly in recent years, has attempted to draw up a rigid National Agreement which should apply from Land's End to John o' Groats. The reason for this is the political influence which the trade union can exert on local councils to grant unreasonable improvements in conditions and the tendency to play off one municipality against another.

An interesting article entitled " Buses on the Dole " appeared in *The Economist* dated February 14th 1953, and should be a warning to our industry. The article refers to the settlement of the New York City bus strike in which the arbitrators conceded a 40-hour week to the bus men, and points out that the provision of local travel facilities for American cities is a dying industry for private enterprise which is gladly surrendering its assets to those municipalities which will accept them. The specific terms of the award have not yet been published, but, as *The Economist* says :—

> " Whatever the award, it will inevitably mean higher wage bills for the companies, unless they cut down their services. Such a cut would have the added advantage of relieving traffic congestion, but in other cities it has been found that, when services are reduced, many passengers turn to private cars, and receipts are, therefore, also reduced ; passenger traffic seldom gets back to its former levels after a prolonged strike.
>
> " Higher wages are the chief element in the rising costs which make it increasingly difficult nowadays for public transport operations to break even, quite apart from making a profit.
>
> " Every increase in fares drives more people out of the public transport market altogether, and thus adds to the basic trouble.
>
> " The car owner rarely buys a car primarily to go to work in ; he buys it for all sorts of other uses and satisfactions which no transit system can possibly provide. To compete with the transit system as a means of getting to work, a car has only to keep its marginal cost reasonably low, at, say, 2 to 4 cents a mile.
>
> " A major element in the high cost of theoretically cheaper public transport is its extreme concentration in two-hour peak periods in the early morning and late afternoon five days a week. Equipment and two full shifts of operators have to be provided to meet this peak, but they stand idle for most of the rest of the time.
>
> " Since 1945, the five-day working week has largely replaced the five-and-a-half-day week in urban employment, knocking out one-sixth of the transit industry's sure receipts ".

Incentive Schemes

In recent years industry generally has become accustomed to talk in terms of man-hours when

considering costs, and this has led to a general acceptance both by employees and employers of the value of incentive schemes to attain higher production. Employees generally are now ready and anxious that new and up-to-date machinery should be introduced into the workshops and that labour-saving devices should be exploited wherever possible. This is a welcome departure from the pre-war conceptions that employment should be created to prevent unemployment and that such events as the recent storms are welcomed because it will find work for men.

So far as the traffic staff is concerned it is difficult to see how a satisfactory incentive scheme can be evolved. Based on full staff establishment the following statistics are relevant :—

No. of vehicle hours worked—	
Per year by Drivers	1,863.0
,, ,, ,, Conductors	1,792.8
Per man per week by Drivers ...	38.0
,, ,, ,, ,, ,, Conductors ...	36.4

There do appear to be possibilities for incentive schemes in the repairs and maintenance sections would receive a 25 per cent increase in wages for the increased output. Thus an average fitter with a present basic rate of £8 1s. 10d. would increase his earnings to £10 2s. 4d. per week, but a good man could earn even more, and no limit would, of course, be set on his earnings. A cleaner with a present basic rate of £6 8s. 4d. would get £8 0s. 5d. per week and again could increase this by good performance. (See Table).

Apart from the savings which will accrue there is the likelihood that the general tempo of the workshops will improve, with a resultant better spirit and morale amongst the workpeople. A systematic incentive scheme would also ensure the elimination of bottlenecks in purchasing and storekeeping which would become more apparent than at present.

Capital investment and repayment of debt in the municipal industry.

A municipal undertaking is compelled by statute to repay in a stipulated time money which has been borrowed to buy and replace capital assets. This time is supposed to equal the

CONSULTANTS' PROPOSALS ON GLASGOW CORPORATION TRANSPORT ESTABLISHMENT

SUMMARY OF ESTIMATED RESULTS

Item	*Coplawhill Car Works*	*Larkfield Bus Works*	*Car Cleaning*	*Bus Cleaning*	*Totals*
Increase in Productivity	60%	55%	48%	53%	—
Increase in Earnings	16%	33%	33%	33%	—
Reduction in Labour Cost	27%	14%	10%	13%	—
Anticipated Redundancy	231	122	123	83	559
Annual Gross Labour Savings ...	£75,500	£20,300	£11,850	£10,100	£117,750
Annual Saving in N.H. Payments ...	£3,000	£1,580	£1,250	£840	£6,670
Annual Total Gross Savings	£78,500	£21,880	£13,100	£19,940	£124,420
Cost of Work Measurement Section ...	£8,500	£4,750	£1,550	£1,250	£15,825
Bonus for Supervision	£3,000	£2,000	—	—	£5,000
Net Estimate of Annual Saving	£67,000	£15,130	£11,550	£9,915	£103,595
Time required to Implement Scheme ...	90 weeks	75 weeks	20 weeks	16 weeks	201
Cost in Consultants' Fees	£11,340	£9,450	£2,520	£2,016	£25,326

of large municipal undertakings, and to explore this possibility I recently invited the principal industrial consultants in the country to examine our establishments in Glasgow. I should here point out that our working expenses per mile compare favourably with other municipal undertakings, being :—

Trams	25.071*d.*
Motorbuses	22.834*d.*
Trolleybuses	24.240*d.*

In spite of this, however, the consultants reported that the total labour force of 2,464 engaged on maintenance of vehicles, including cleaning, could be reduced by 559, showing an annual saving of over £100,000. The remaining employees

economic life of the asset in question, but it is found in practice that the period is very much less than the real economic life ; for example, loans obtained to buy motor-buses must be repaid in ten years, whereas it is proved in practice that such a vehicle has a real economic life of 15 years. A private company purchases such assets out of its working capital, and can set aside provisions for replacement by way of depreciation over the real economic life as determined by its own experience.

It should be possible, as it was before the war, for a municipal undertaking to aim at being debt-free and to build up a reserve or depreciation fund from which it can replace worn-out assets.

The Decline and Fall of the London Tramways

C. F. KLAPPER A.M.INST. T.

Shortened version of a paper read before the Metropolitan Section on December 1st 1952. The Author, a Member of Council, is Editor of "Modern Transport".

The passing from the London scene of the tramcar during the summer of 1952 justifies some reference to the remarkable achievements of the street tramway as a factor in the transport development and social progress of our era. The street tramway is a transport machine with many obvious advantages and not a few defects ; the tramway has also suffered from a number of extraneous matters unconnected with its merit as a method of transport and the effects of these afford an interesting study.

Although passenger-carrying in tramway conditions was carried out at Swansea on the world's first passenger-carrying railway in 1807, the street tramway really originated in New York in 1832 as a means of overcoming atrocious road surfaces. Curtis operated trams in Liverpool docks in 1859, but George Francis Train, an American, made the first serious attempt to introduce trams to this country. He was successful at Birkenhead in 1860, and in 1861 began three short schemes in London, the last of which was taken up by order of the authorities by June 21st 1862, owing to the objectionable step rails employed.

Tram affairs in London marked time for seven years and then in 1869, powers were obtained for new undertakings in which the grooved rail familiar today was to be used. These were the Metropolitan Street Tramways, the Metropolitan Tramways and the Pimlico, Peckham and Greenwich Tramways.

The Metropolitan Street Co. opened its undertaking on May 2nd 1870 between Brixton and Kennington, the extension to Westminster Bridge over the last of Train's ill-fated routes being completed by the end of the year. Just a week later the Metropolitan, which renamed itself North Metropolitan, opened from Whitechapel Church to Bow Church over the first tramway route in London to be authorised by Parliament. The London General Omnibus Co. supplied some of the horses for this venture. The third of the trio, the Pimlico company, built a line from Vauxhall Cross to the foot of Blackheath Hill ; from Blackheath Hill to New Cross was completed on December 13th 1870, and the name changed to London Tramways.

The Years of Growth

The year 1870 was to prove most important in shaping the course of British tramway events, as the Tramways Act of that year provided for the exercise by local authorities of a veto upon tramway construction and also for the compulsory purchase at virtually scrap value of any tramway system at 21 years after construction or thereafter at intervals of 7 years. This had some calamitous results for tramway companies when it came to electrification, as it provided insufficient security of tenure. The paving of the streets between the rails and also 18 ins. outside the track was made the responsibility of the tramway undertaking. The veto clause came into brisk action straight away : the City of London Corporation used it to prevent the North Metropolitan Co. building lines in the city, both on amenity grounds and because the police considered trams would be obstructive to other traffic, although the company had obtained powers to do so over the principal approaches to the Bank junction. By a decision of the courts in 1873 tramway undertakings have to pay local authority rates on their equipment in the road.

The London Street Tramways Co. secured its Act on August 10th 1870 and opened its first lines on December 1st 1871 ; from Hampstead Road (1871), Holborn (1889) and Farringdon Road (1886), it eventually served the western sector of the north of the Thames system, out to Hampstead Heath, Kentish Town and Holloway (1878). The North Metropolitan took most of the remaining territory in North and East London south of Finsbury Park. Eventually the system reached Finsbury Park, Clapton Common, Leytonstone (Green Man), Manor Park, and Poplar ; a detached section served Barking Road, Canning Town, and was operated by battery-electric cars for a time.

In 1889, the Lea Bridge, Leyton and Walthamstow Tramways was incorporated to build the Lea Bridge Road route. A detached section of tramway north of the Thames was that of the Harrow Road and Paddington company, incorporated in 1886.

The North London Suburban Tramway Co., Ltd., secured a Tramways Order in 1879 and opened from Stamford Hill to Edmonton in 1881 and out to Ponders End in 1882, in which year it became a statutory company, the North London Tramways Co. A branch from Seven Sisters to Finsbury Park was opened in 1885, when steam traction was adopted, with Merryweather locomotives. In 1891, the liquidator sold the concern to the North Metropolitan, which operated the lines with horses.

South of the river, the South London Tramways Co., serving principally Battersea Park Road and Wandsworth Road, which were joined to termini at Stangate (Westminster Bridge), Waterloo, Southwark Bridge Road and Hop Exchange, was incorporated in 1879 and began public service on January 1st 1881.

The London Tramways Co. operated in Vauxhall Bridge Road (a detached section opened in 1873, on which the Grantham self-contained steam car made its début before going to the Wantage Tramway), and from Vauxhall Cross to Greenwich, and southward from Westminster and Blackfriars bridges to the Clapham, Brixton, Walworth and Old Kent Roads. Some miles to the south of its line to Brixton Hill were the Croydon and Norwood Tramways, the first section of which was opened by the Croydon Tramways in 1879, from Thornton Heath Pond to West Croydon. The London Southern Tramways Co., formed on August 18th 1882, served Norwood Road, its connexions to London forking at Loughborough Junction to run via Brixton and Stockwell to Vauxhall westward (1887) and to Camberwell Green eastward. Tooley Street to Deptford, Spa Road, Southwark Park Road and Rotherhithe New Road were served by the London, Deptford and Greenwich Tramways (incorporated in 1879 as the Southwark and Deptford tramways and renamed in 1891 ; the first section was opened in 1880). Greenwich, Lewisham and Catford were joined by the South East Metropolitan, formed as the Lewisham Tramways and opened in 1891. The London, Camberwell and Dulwich system (1884) opened nearly 3 miles of line in obscure back streets of Peckham which were derelict when bought by the L.C.C. in 1904 and abandoned. All the foregoing were standard gauge.

Further east, the Woolwich and South East London Tramways ran from East Greenwich to Plumstead on the 3ft. 6in. gauge, The first section was authorised in 1880 and the line was completed by 1883.

The western suburbs had their first horse tramway, between Shepherds Bush and Acton, in 1876, this being the property of a company with the high-falutin title of " Southall, Ealing and Shepherds Bush Tram-Railways Company ", incorporated by Act of 1873. In 1882 the lines were taken over by the West Metropolitan, which extended the system and in 1894 by the London United, which had Train's office boy, J. Clifton Robinson, as managing director and which later distinguished itself as the first undertaking to introduce electric traction in a London area tramway, with lines from Shepherds Bush to Acton and Kew and from Hammersmith to Kew. The electrified lines would have been opened in the last months of the nineteenth century, as they were ready in the autumn of 1900, but a dispute with the Kew Observatory authorities about stray return currents held up arrangements until April 4th 1901.

The 3ft. 6in. gauge Highgate Hill cable tramway was the first in Europe and began operation in May 1884 ; the gradient was 1 in 10 and as the $\frac{3}{4}$-mile for 2d. did not attract a sufficient volume of custom the track got into a bad state, leading to a serious derailment in 1894 and the closing of the line until its fortunes revived two years later. It was reopened in 1897 with an emergency brake.

The London Tramways Company adopted cable traction between Kennington Church and Brixton in 1892 ; the line was extended to Telford Avenue at the top of Brixton Hill in 1896.

In 1900 340 million tram passengers were carried ; the London population numbered $6\frac{1}{2}$ million. The route mileage was 142, but the only large concerns were North Metropolitan, $51\frac{3}{4}$ miles, and London Tramways, $24\frac{1}{4}$ miles. These companies had central overhaul depots at Union Road, Leytonstone, and Penrose Street, Walworth, respectively. About 8 to 11 horses, valued at from £20 to £50, were needed for each pair horse tram. In 1898 the North Metropolitan had 673 cars and 7,167 horses and the London Tramways 399 horse cars, 40 cable gripper cars and 3,835 horses.

Electrification and Unification

The London County Council began to serve notices for compulsory purchase on the tramway companies in its area as soon as the 21-year purchase clause of the 1870 Act permitted, the first notice being served on November 12th 1891, on the London Street Tramways Company. The two largest to be acquired, the North Metropolitan and the London Tramways, were taken over in 1896 and 1899 respectively, but on the north side of the Thames all lines were leased to the North Metropolitan for working while the Council made up its mind about electric traction. Severe restrictions were, however, imposed on the way the North Metropolitan did its business and, although it was acquired by the British Electric Traction group, the L.C.C. staved off any attempt to electrify lines inside its area.

On the south of the Thames the L.C.C. entered upon operation itself, raised wages and shortened working hours and also endeavoured to lay a line on the Embankment, a scheme rejected by Parliament because electric traction was not proposed. As an alternative the bus service across Waterloo Bridge acquired from the tramways company was extended from Somerset House to Charing Cross. London bus proprietors joined together to obtain an injunction against the L.C.C., which had powers to operate only

tramways, and the buses had to be withdrawn in 1902. Out of the action sprang the Omnibus Owners Association, one of the constituents of the present day Public Transport Association.

Powers to electrify from Blackfriars and Westminster Bridges to Tooting (Totterdown Street) were obtained at this juncture and electric traction was inaugurated for the L.C.C. on May 15th 1903, by the Prince of Wales, later King George V. The work of converting the rest of the system went on fairly fast, but with some tedious delays, as the various undertakings were bought, and as street widening progressed.

Outside the County of London electric tramways were introduced in East Ham and Croydon in 1901, the Ilford system and the Barking line to Beckton Gasworks came into operation in 1903, as did the Bexley U.D.C. lines, which entered the L.C.C. area at Plumstead. In 1904 the first part of the West Ham system was opened in February and on July 22nd the Metropolitan Electric Company began between Finsbury Park and Tottenham and from Manor House to Wood Green. This B.E.T. company operated lines owned by the County Councils of Middlesex and Hertford and the system was planned as a whole.

The Walthamstow and Erith systems were opened in 1905, the South Metropolitan (Crystal Palace, Sutton and Tooting to the Croydon boundary) in 1906 ; the Leyton U.D.C. and Dartford systems also began in that year.

The London tramway system was rounded off by through-running between the various owners under pressure of circumstances. Bus competition led to through working being initiated between the L.C.C. and M.E.T. at Finsbury Park on August 1st 1912 ; at Manor House on August 16th 1914 ; and at Highgate on September 24th 1914.

The L.C.C. having purchased L.U.T. lines in the county, as from May 2nd 1922, a through service via Hammersmith Broadway from Kew Bridge to Hop Exchange was introduced. The L.C.C. at the same time began to operate all the service on the L.U.T. between Tooting and Wimbledon. In 1926, Embankment-Hampton Court through workings began via Wimbledon at weekends. Through working to Croydon and Purley via Norbury—where the L.C.C. and Croydon tracks met in 1909—was begun in 1926. In the same year, a through service via Tooting Junction to Cricket Green (S.M.E.T.) began, but it was not until the London Passenger Transport Board was formed that a West Croydon-Harrow Road service was initiated on December 7th 1933. A through service from Walthamstow to Liverpool Street began on January 24th 1926.

In 1921 the L.C.C. took over operating responsibility for the Leyton U.D.C. system. In 1917 the Dartford system—company worked—lost all its cars in a depot fire ; in war-time conditions new vehicles were unobtainable, but Bexley operated the lines, with the aid of old L.C.C. four-wheeled cars, from August 7th 1917. In 1921 the lease to Balfour, Beatty & Co., Ltd., expired and Dartford U.D.C. then joined Bexley U.D.C. in a joint committee.

The Decline

At the time of handing over to the London Passenger Transport Board the London tramways comprised the undertakings of three companies (all, after 1915, managed as part of the Underground group), six non-operating municipalities (Dartford U.D.C., Middlesex County Council, Leyton Corporation, Barking Corporation, Hertfordshire County Council and City of London Corporation), and eight active municipal undertakings (Bexley U.D.C., on behalf of the Bexley and Dartford Joint Committee, Croydon, East Ham, Erith, Ilford, L.C.C., Walthamstow and West Ham). In 1931-32, 1,042 million passengers were conveyed in 2,630 trams over 328 route miles. The peak mileage in use at any one time was just short of 350. Of the municipalities, Erith in 1931-32 made an actual operating loss, but all the others except Bexley, Ilford and West Ham needed rate aid to make ends meet and altogether £151,000 was allocated for that purpose.

Abandonment

The closing down of tramway services is not a new phenomenon. It began in a small way with horse services which were not electrified, such as the London, Camberwell and Dulwich system, Spa Road, Rotherhithe New Road (closed 1913), Liverpool Road (closed 1913) and Southwark Park Road (service from Bricklayers Arms to Surrey Docks station, the last horse traction tramway in London, ended on April 30th 1915). The L.U.T. detached horse line from Kew Bridge to Richmond station was closed on May 31st 1912, the L.G.O.C. bus service 27 having been extended from Turnham Green to Richmond the previous December.

Despite efforts with one-man cars the North End electric line of Erith U.D.C. was unsuccessful and it had been abandoned by about 1909. At that time the Beckton Road route of West Ham was reduced to six journeys daily and during the 1914-18 war it was taken up to effect track repairs elsewhere.

The motor bus

To meet rising costs the L.U.T. made one-man car experiments on the Kingston-Richmond Park Gates and Southall-Brentford lines in the period 1922-28, but pruning of the system was also carried out. The Hounslow Barracks line was

cut back to Hounslow in 1922 and the Twickenham-Richmond Bridge branch was discarded in 1924. Croydon, having abandoned its Whitehorse Road approach to Thornton Heath twice by 1913, arranged for its Addiscombe branch to be replaced by L.G.O.C. buses on March 31st 1927. Barking abandoned its Beckton line, with the un-wired bascule bridge across the Roding over which cars had had to coast precariously, in 1929, again in favour of an L.G.O.C. bus service.

The trolleybus

The L.U.T. once more led the field in 1931, under its Act of 1930, in turning over 17 miles of the lines east of Twickenham and Hampton Court to trolleybus operation. Previously the trolleybus had been seen in London running only experimentally—in the M.E.T. Colindale depot (a "Railless", labelled "Hendon and Golders Green") in 1909 and at West Ham for the Municipal Tramways Association meeting three years later.

After the formation of the London Passenger Transport Board in 1933 the question of the light traffic tramway routes became acute. It was decided to extend the trolleybus to the rest of the L.U.T. system and part of the M.E.T. for a start, as well as to the S.M.E.T. and the Bexley, Dartford and Erith systems, where tracks and cars were worn out and in great public disrepute. By 1935 the Shepherds Bush-Hampton Court section of the L.U.T. and the Bexley-Erith system had been converted (part of the Dartford service, to Horns Cross, was absorbed in the country bus department services), and in 1936 the Sutton-Crystal Palace section was completed.

With the exception of the remaining Kingsway subway routes to Manor House and to Archway Station from Bloomsbury, the conversion to trolleybuses north of the Thames was completed with stage 12 by June 9th 1940, when the Bloomsbury-Aldgate-Barking route was changed over. Buses had been made responsible for traffic on the Wanstead Flats-Royal Albert Docks route, giving full integration with the Wanstead-North Woolwich bus facilities which cross the dock entrances over Scherzer rolling lift bridges, where trolleybus equipment would have posed serious problems. Junction Road, between Kentish Town and Highgate, had similarly been remitted to bus operation. New routes had served Silvertown Way between Canning Town and North Woolwich, and made a connexion from Leyton High Road to Markhouse Road and the Higham Hill line. There the war and its aftermath caused matters to rest for just a decade.

The Fall

When the South London scheme came up for review after the war the motor bus was favoured in lieu of the trolleybus. Diesel fuel (before recent taxation changes) cost less than traction current; motor buses are cheaper than trolleybuses in capital cost, although there is not much in it if the 70-seat trolleybus is compared with the 56-seat motor bus. But from the viewpoint of alterations in street layout and the integration of passenger services on the street the motor bus has great advantages; nor is it limited by the irritating turning circle restrictions put on the Board in respect of the Embankment and other London termini in its 1937 Act.

The bus scheme for South London was prepared in general in 1946 and from 1948 onwards the Tramway Conversion Co-ordination Committee held 61 meetings before its work was completed on July 5th 1952. It met under the chairmanship of Mr. J. B. Burnell, Operating Manager, Central Road Services, London Transport Executive, to whose tact and skill Lord Latham, then Chairman of the Executive, paid a tribute at the final ceremony. After reviewing the garage reconstruction position, the delivery of new buses and other factors, the target date for the first of nine quarterly stages was set, two years in advance, as October 1st 1950, and this was adhered to. In fact, as the scheme progressed certain advances on schedule were made and stages 8 and 9 were eventually merged so that the conversion was complete three months ahead of the anticipated date.

The nine areas into which the programme was divided were intended to run in order from Wandsworth in the west to Woolwich in the east, so as to leave the area with the overhaul works at Charlton and the Penhall scrap yard to the last section. At a very early date it was apparent that the new Stockwell garage would not be ready in time for use in Stage 4 and the Deptford routes intended to run from Peckham Bull Yard were therefore substituted, the Norwood line being taken instead at Stage 7. This was typical of the difficulties arising from delays in obtaining possession of garage sites, delays in supply of material, and the like. At one time structural steel shortages caused reinforced concrete garages such as Peckham Bull Yard and Stockwell to be designed, while a later lack of cement brought reversion to steel frame roof supports, as at Peckham Rye Lane.

Plans, however, were kept flexible to meet all difficulties. An important feature was the taking of the staff into the confidence of the management throughout the change-over, so that if a depot had to be used under rough conditions the men at least knew there were good reasons why the discomfort was unavoidable.

In the provision of the services it might have been thought that as 74 and 70-seat trams were being replaced by 56-seat buses, the number of vehicles required would be in inverse ratio, less

an allowance for the shorter running time of the buses (e.g. 8 minutes less to Purley). In practice it was found that the trams, even in the peak hours, had not been used to capacity and that extraordinary economies of vehicles were possible. As the tram system became merged in the bus network these savings became progressive, so that in the last stage 114 buses replaced 162 trams. In all, 768 buses, excluding spares, were needed for 737 scheduled trams removed from service.

Integration of routeing has already been achieved to a considerable degree. It is quite obvious that further integration is feasible and that a still wider field of integration would be opened up by the decision to replace trolleybuses by motor buses, despite the manifest attractions of the electric trolleybus. The value of having only one type of vehicle on the road has been demonstrated before, as at Bristol, but London re-emphasises this aspect. Re-distribution of Sunday work between garages is a further interesting aspect, as most tram depots were, and many trolleybus depots are, under-employed on Sundays.

The Contribution of the Trams

Apart from Train's abortive efforts the tram served the Londoner for 82 years. To its credit was the low tractive effort required, which enlarged the unit and thus gave it a financial advantage over the early horse bus if traffic was sufficiently dense. This in time enabled cheap fares to be offered and also the cheap early morning workmen's fares, such as 1d. for Bow to Aldgate in 1871. The London Tramways Co. introduced the transfer fare, originally to cover journeys from Victoria by tram along Vauxhall Bridge Road by bus from Bessborough Gardens to Vauxhall Cross over the bridge, by tram thence to Camberwell and another to New Cross.

The municipalities fostered workmen's facilities and low maximum fares (from 1912 to 1918 3d. single and 5d. return in the L.C.C. area). The L.C.C. eventually (in 1920) offered the cheap mid-day 2d. maximum between 10 a.m. and 4 p.m. over runs of up to 14 miles, and the 1s. all day ticket (1925) on which the enthusiast could cover up to 350 miles.

All the electric tramway operators were generous in provision of services, and they undoubtedly did their utmost to foster traffic development, resulting in (a) the spread of suburban London and, (b) a greater choice of work-place to the working man, by expanding his radius of travel. Electric tramways stimulated suburban railway electrification schemes and also caused the closing of many inner suburban stations. The L.C.C. down to 1914 ran a phenomenal number of short journeys, such as Charing Cross-Vauxhall and Savoy Street-Rye Lane, Peckham, to assist peak hour operations.

Until 1924 the trams carried more passengers than any other form of transport in London ; traffic continued to increase until in 1930 it totalled 1,081 millions, but bus traffic was growing at a greater rate. The growth of independent and L.G.O.C. buses from August 1922 onwards, when Arthur Partridge introduced the Chocolate Express, seriously affected tramway finances and by 1924 they were unable to meet wage demands and a strike resulted. Apart from the General Strike of 1926 it appears to have been the only labour stoppage experienced by the London municipal systems. The outcome was the London Traffic Act, 1924, which regulated bus competition. It speedily proved insufficient and it became necessary to tackle the problem from an ordinary commercial angle by re-seating and re-equipping cars; about 600 new cars were built between 1927 and 1932, although only the 100 Felthams and their prototypes, 92 of which are now in Leeds, and the L.C.C. No. 1, represented any great advance on the type which had been established twenty years previously.

But even after the formation of the L.P.T.B. in 1933, Lord Ashfield was able to say that the trams earned about 4 per cent on the capital involved—although it must be remembered that this had been written down ; the municipalities were only paid the outstanding capital debt (so that the less well they had run the concern the more they received). Immediately afterwards, however, he had to point to the urgent need of costly track and rolling stock renewals and it was these factors, coupled with the existence of many miles of track in narrow and unsuitable thoroughfares, that led to the first stages of the trolleybus conversion scheme.

Causes of the Downfall

(a) Psychological

Londoners as a whole have never entirely approved of the tram. They tended to side with the carriage folk, who were upset by Train's step rails and who have skidded on other tram rails ever since. Train, as a Yankee, made a poor impression on the Metropolis and he received no support from the working men who used the Surrey Side Street Rail Company's system and whom he tried to incite to resist the Sheriff's men who were lifting the track. Trams have nearly always been deemed to "lower" a neighbourhood ; less often do we hear of rateable value increasing because of a tramway.

It has sometimes been argued that Londoners never had the opportunity of seeing modern type trams for themselves. That is not altogether so. When the L.U.T. Uxbridge Road cars were

re-seated and re-motored the revenue increased from about 1s. a mile to 1s. 6d. ; with the introduction of the handsome 64-seat Feltham cars (designed by the Underground group with a view to use on a reserved track light railway to Uxbridge), revenue rose again. But it rose still more when trolleybuses replaced the trams and, in fact, I know of no instance where gross takings did not rise upon the trams being superseded. Tram passengers who had forsaken the road transport for the Underground between Kennington and Stockwell have apparently returned to the road since buses replaced the trams.

(*b*) *Physical*

The physical limitations of the tramway system of London were many. It was a lopsided system of dead ends, not only round the central core of the City, but round a vast unserved central, western and north-western inner business and suburban area.

Single-track and passing loop layouts in narrow streets held up many tram services in the outer areas ; the L.C.C. carried out costly street widenings to avoid this handicap as far as practicable. In other roads, such as Crownfield and Cann Hall Roads, Leyton, although track was double, it filled the space between kerbs and trams had to wait patiently for the coalman to unload. Restrictions imposed by Parliament and the local veto system were accompanied by restrictions on through running brought about by jealousies between the tramway authorities themselves.

(*c*) *Financial*

There is no doubt that many of the London area tramways should not have been built and no doubt they would not have been laid on light traffic routes had the motor bus been perfected a decade earlier. In addition, many public works, street widenings, public lavatories, and the like were thrust on tramway authorities under threat of the local veto.

When, in 1950, London buses and trolleybuses made a modest surplus on their operations, the 800 trams cost £1,250,000 more than their receipts of £2,360,000. The operating costs per vehicle-mile were :—tram, 31.23 pence ; trolleybus, 26.38 pence ; and diesel bus, 24.87 pence. Per seat-mile, if all the capacity were used, this does not show the larger tram and trolleybus in an unfavourable light, but as the late Sir Theodore Thomas once pointed out, it is the net revenue which matters. Furthermore, the convenience of the motor bus in being able to divert to other roads or work a fan of routes beyond the densely-populated area, is of inestimable advantage. Our conditions are so different from certain Continental cities, where the built-up area stops abruptly, so that public city transport has only to serve a densely populated district and the tram can thus sometimes survive.

London is in the British fashion, of course ; we now (1952) have only ten tramway systems left in England and Scotland, most of them doomed.

Conclusion

Some notable men have played their part in the story of the London tram—the eccentric Train ; his successor in business as a propagandist for the tramway—James Clifton Robinson, later knighted ; the sterling but unimaginative Fell ; and H. E. (later Sir Herbert) Blain, the cripple, who, questioned by a West Ham councillor as to his ability to get about the system, said he proposed to manage the trams with his head, not his feet, and succeeded so well he was called to serve at 55 Broadway in a larger sphere. Michael Lewis Slattery another West Ham manager, deserves a mention for having good ideas on the attractive rebuilding of cars and the adoption of upholstery. Christopher John Spencer came from Bradford, where he had worked on trolleybus development, to the Underground company tramways and after twelve years persuaded Lord Ashfield that the trolleybus was worth adopting. Finally there was Theodore Eastaway Thomas, or T.E.T., who became Sir Theodore, but who started under Clifton Robinson in the L.U.T., became a divisional engineer, went to the headquarters of the Underground group and then transferred to the L.C.C. to instil modern commercial practice and so eventually became the greatest tramway manager of them all, with the entire London system and the buses under his control in the L.P.T.B. One could but admire his grasp of minute detail, his wit, his keen interest in the welfare of transport students and his sound judgment. That last-named quality led him, a tramwayman by upbringing, to see that the time had come for a change and to embark wholeheartedly on tramway replacement, a work which, but for the intervention of war, he would have seen completed a decade ago, and a work which, now it is finished, we can only commend.

Finally, I should say that whereas some of the historical data, all the opinions and all the errors in this paper are my own, many of the historical facts on tramways have been put on record by my friends, Messrs. Merton Atkins, Charles Dunbar, John Gillham, Peter Hardy, Charles E. Lee and E. M. S. Upton, and to those and others who have assisted I express my thanks, as also to Mr. A. Latchford of the London Transport Executive for his ready help and the loan of the lantern slides which illustrated the delivery of the paper.

The Organisation and Functions of I.A.T.A. and I.C.A.O.

E. C. MURRAY

Paper read before the Bristol Graduate and Student Society on January 15th 1953. The Author is Official-in-Charge of the British Overseas Airways Corporation I.A.T.A. office.

Scheduled air services commenced in 1919 and the few airlines then in existence were quick to realise that purely domestic operations were not going to be a financial success. International flights held out hopes of a more successful financial venture, and it was clear to the operators that co-operation was vital if the industry was to develop and expand internationally.

Accordingly, on August 25th 1919, the International Air *Traffic* Association was formed at the Hague by six companies, one of which was only then in the process of organisation. These six companies were represented by twelve delegates and at the end of a 3-day session, a very simple agreement was drawn up ; this was hand-written by the chairman and signed by the delegates, who agreed :

> " . . . to form the International Air Traffic Association with a view to co-operate to mutual advantage in preparing and organising aerial travel ".

In those early days of aviation, the problems discussed were confined generally to traffic matters and accountancy procedures, with legal experts at first playing a small part in the over-all pattern.

For the first few years all problems were debated at the General Meetings. As time went on, however, operators had to lean more and more on the experts in their specific fields, and provision was eventually made for their proper use by establishing permanent Committees on traffic, legal, postal, cash examination, and radio-telegraphic matters.

Just before the second world war, that is as at August 28th 1939, there were 29 members (mainly European operators) drawn from 24 countries.

The Post-War I.A.T.A.

During the latter part of the second world war most governments felt that the Paris Convention of 1919 relating to the Regulation of Aerial Navigation would have to be replaced with a new Convention which would allow for a more flexible pattern for the regulation of civil aviation, and with far wider scope. The initiative in this matter was taken by the President of the United States of America, and at his invitation members of allied and neutral governments met at Chicago in late 1944 to attend the International Civil Aviation Conference.

At the same time transport operators felt that a new I.A.T.A. would have to be established to carry on the traditions of the old Organisation in a vastly expanded field. Accordingly, a meeting of operators was held on December 6th 1944 at Chicago, and within a week of this meeting a Special Committee, which had been set up to draft Articles of Association for the new world-wide organisation, had completed its work and draft Articles were circulated to various operators with an invitation to meet in Conference at Havana in April 1945. This meeting resulted in the adoption of the new Articles of Association, and the formation of the new I.A.T.A. re-named International Air *Transport* Association.

Objects

The aims and purposes of I.A.T.A. are now clearly defined as follows :—

> " To promote safe, regular and economical air transport for the benefit of the people of the world, to foster air commerce and to study the problems connected therewith ;
>
> " To provide means for collaboration among the air transport enterprises engaged directly or indirectly in international air transport services ;
>
> " To co-operate with the International Civil Aviation Organisation and other International Organisations ".

Membership

Membership of I.A.T.A. is open to two classes of operator :—*Active Members*—any air transport enterprise which operates a scheduled air service under proper authority for the transport of passengers, mail or cargo for public hire between the territories of two or more States under the flag of a State eligible for membership in I.C.A.O.

Associate Members—any other air transport enterprise operating a scheduled air service under proper authority for the transport of passengers, mail or cargo for public hire under the flag of a State eligible for membership in I.C.A.O.

If an Associate Member becomes eligible for Active Membership by reason of its operations, its Associate Membership is automatically terminated.

On January 1st 1953, there were 63 Active and 4 Associate Members in I.A.T.A. representing 43 countries.

Membership Dues

Dues are fixed annually by the General Meeting on the recommendation of the Executive Committee, and are based to a large extent on the size of each Member's international operations. Those for Associate Members are set in proportion, but on an arbitrary basis in relation to the total budget.

Additional costs are collected from each Member to cover the cost of the Traffic Conference machinery, and are levied on the carrier's actual interest in the Conference Area concerned. Some Members with a world-wide network of services are interested in all Conferences and consequently subscribe to them all.

Organisation

General Meeting

The ultimate authority of I.A.T.A. is vested in the General Meeting composed of representatives of the Active Members of the Association, each Member having only one vote. The Head Office of I.A.T.A. is at Montreal.

The General Meeting elects a President for the ensuing year and decides where the next meeting will be held. At these meetings the members of the Executive Committee are elected, reports of the Executive and other Committees are received and considered, accounts for the past year and budgets for the following year approved and such other business generally transacted as may be on the agenda or proposed at the meeting itself.

The General Meeting might well be described as the Board of Directors.

Executive Committee

The Executive Committee, composed of senior representatives of Active Members, is vested with powers to control the affairs, funds and property of the Association and generally to direct its activities within the framework of the Articles of Association.

This Committee is required to hold meetings immediately before and following the General Meeting and one other regular meeting. Special meetings may also be called on certain conditions.

The Executive might be described as a Management Committee.

Standing Committees

Five Standing Committees have been set up to deal with problems of special interest in their own field of activity. They are :—Financial Committee, Legal Committee, Medical Committee, Technical Committee and the Traffic Committee.

These Committees deal with everyday problems which arise and plan for the future on sensible and progressive lines. They are appointed by the Executive Committee, with the approval of the General Meeting, and are limited in numbers varying from 12 persons in the Financial Committee to 21 in the Technical Committee.

Membership of these Committees is made up of experts in their own subjects and drawn from operators who are Members of I.A.T.A. They act as representatives of I.A.T.A. and not of their own airlines ; consequently their experience is available to all members of the Association.

Each Committee is required to meet at least once each year, and special rules and regulations have been laid down by the Executive Committee for the proper functioning of these Standing Committees. The Standing Committees in turn are empowered to create such permanent or temporary Sub-Committees as they consider necessary for the proper consideration of matters coming before each Committee.

The Standing Committees have to consider not only the situation within the industry, but also the likely effects any proposed national and international legislation may have on the Operators. For example, the Legal Committee will consider the probable effects on operators of any amendments or modifications which may be made to international agreements, such as the Warsaw Convention. Likewise the Legal Committee receives and considers recommendations from other Standing Committees to ensure that they meet all legal requirements and do not leave operators open to unexpected legal claims.

Clearing House

The I.A.T.A. Clearing House came into being on the recommendation of the Financial Committee on January 1st 1947. It was established for the purpose of eliminating duplication of work and reducing exchange difficulties and costs to its members.

Acting for the operators in a similar way to the Railway Clearing House in the matter of inter-line transactions, the Clearing House achieves considerable economies in accounting expenditure. The reduction in transfer of funds which has been made over the past few years may be gauged by the fact that offsets between airlines have on occasions reached 99 per cent of the dealings between members of the Clearing House, but the average monthly offset is around 85 per cent.

Methods of simplifying, cheapening and accelerating the clearance of each member's accounts are constantly under examination, and experiments are now being conducted on certain lines which, if proved completely successful and adopted by the airlines, would very greatly lessen the burden and complications of revenue accounting.

The Clearing House is financially independent. It is a very small and extremely efficient unit situated in London, and costs are covered by a nominal fee charged for each transaction.

An index of its increasing usefulness to the I.A.T.A. members who belong to it is to be found in its turnover of total transactions ; from £180,000 in its first month of operations, the monthly average is now just over £7,000,000. With the average offset being at just over 85 per cent, it will be appreciated that the saving in transfer of monies each month is considerable.

The Traffic Conferences

In order to obtain the greatest measure of financial economy with general efficiency, the world has been divided into three parts, each of which is known as a Conference Area.

Traffic Conference No. 1 includes the Americas and adjacent islands, Greenland, Bermuda, the West Indies, the Caribbean Region and the Hawaian Islands.

Traffic Conference No. 2 takes in Europe and the islands adjacent thereto, Iceland, the Azores, Africa and the islands adjacent thereto, and that part of Asia lying west of but including Iran.

Traffic Conference No. 3 includes Asia, the East Indies, Australia, New Zealand and the islands of the Pacific except those in Traffic Conference No. 1.

Purpose and Function

The traffic conferences may consider and act upon all traffic matters of concern to their members provided that any such action shall not be inconsistent with the articles of association of I.A.T.A. and with the Provisions for the Regulation and Conduct of the Traffic Conferences.

Under their terms of reference, each conference is an autonomous body and while it receives recommendations from the Executive Committee and certain other Standing Committees, it has the power to adopt any resolutions which it thinks fit. Each conference has the right to meet individually, but because air transport provides so many links throughout the world, it has been found in practice that problems affecting one conference area are almost certain to affect at least one of the others, if not all three. With a view, therefore, to establishing the greatest measure of uniformity between the three areas, it is now the practice of the traffic conferences to meet in composite session and, wherever feasible, adopt recommendations which are, of course, made principally by the Traffic Committee. Subject to Governmental approval, they take firm and binding decisions on all matters where the fares and rates are involved ; they bring uniformity into the many traffic documents and forms on such matters as General Conditions of Carriage, Reservations Procedures, Codes and Policy Matters pertaining to Agents.

Acceptance or rejection of resolutions adopted in conference is by unanimous vote. A single negative vote is sufficient to throw out any proposed resolution, which is the small operator's safeguard against the other airlines where for instance, they fear that the adoption of a certain resolution is likely to cut into their local trade. A further safeguard is, of course, provided by the process of obtaining Governmental approval, so that if any airline abstains from voting at the conferences on a resolution which they do not at the time feel sure will not ultimately hamper or affect their own operations, their Government has the opportunity to have the final say in the matter.

This process of obtaining the approval of the various Governments is also in the public's interest, so that any agreements reached on such questions as baggage allowance, rebates, etc., which directly touches the passenger's pocket will have to be officially approved before the arrangement becomes effective.

The rate making machinery of I.A.T.A. has an interesting history.

The Chicago Conference of 1944 could not agree a device for the economic regulation of air transport largely because of diverging views between the American and British delegations. While the Americans wanted free competition without regulation, the British were anxious to set up some form of international control to protect the interests of the various countries. It was not until January 1946 that the United Kingdom and the United States of America eventually reached agreement in this matter of control, which led to a bilateral agreement between the two Governments governing the operation and regulation of international air services. A clause in this agreement stipulates that fares and rates shall, in the first place, be agreed between the national airlines concerned, failing which they shall be discussed and agreed by their respective Governments.

This agreement is now commonly known as the " Bermuda Agreement " and is taken as the pattern for nearly all bilateral agreements in the matter of air services between other countries.

The success of the whole conference structure is demonstrated by the fact that all Governments are quite happy to allow fares and rates to be decided by the operators. Working on the " give-and-take " principle and with good-will generally, the conference machinery functions efficiently and smoothly.

Sub-Committees

Many weeks before a conference is held the various Sub-Committees meet and prepare much

of the spadework which has to be done. Costs have to be very carefully examined by experts from the various airlines, and their findings are circulated to members in a full report. The cost per unit having been determined, the Fares and Rates Sub-Committee then meet and are able to recommend economic tariffs to the Conferences.

While this is going on the Agency Sub-Committee of each conference meets in individual session and examines all agency matters and puts up recommendations to the conferences. New agents are appointed where necessary, and in certain cases recommendations are made for the termination of agency licences on the grounds of persistent unethical practices, poor sales records, etc.

When the reports of the various Sub-Committees are circulated by conference secretaries, a high-level meeting may be proposed by some members to clear up any doubts on major points of contention in their own spheres in order to save valuable time at the conferences. Thus we may find a high level meeting being held in one of the South American countries to discuss specific subjects affecting International carriers in the South American Continent, and a large measure of agreement can be reached in advance. Any subsequent resolution proposed on the conference floor may then be agreed in the shortest possible time, without delegates of other operators, who are not in the least concerned with South American operations, being inconvenienced in any way.

Such are the main functions of I.A.T.A. as it is today. Through the General Meeting, the Standing Committees and the Secretariat, members freely exchange information on a variety of subjects which can be and is invaluable to all. This is particularly true in the case of the small operator who may not have specialists of his own.

Furthermore, the constant improvements that are being made by the airlines eventually lead to the provision of better service and value to the passenger.

I.C.A.N. and the Paris Convention

Although only a few international flights were made in 1919, the need for uniform regulations to govern international air transport was immediately apparent.

An attempt was made, at a meeting in Paris in 1919 of 19 European countries, to draft a convention, but the delegates could not agree on the precise text, and it was left to the Aeronautical Commission of the 1919 Peace Conference which was meeting in Versailles to take positive action in the matter.

This Commission finally drew up the International Convention for Air Navigation, commonly called the Paris Convention, which was signed in Paris on October 13th 1919. This Convention laid down certain technical standards for international civil aviation and established the International Commission for Air Navigation (I.C.A.N.). Provision was made for the collection and exchange of information among I.C.A.N.'s Member States.

By 1922, fourteen nations had ratified the Convention and had become members of I.C.A.N., and just before the second world war membership of this organisation had increased to 33.

The Chicago Conference

During the second world war military air transport organisations, chiefly American and British, were built up on the bases of existing peacetime international air services. Expansion was rapid and landing fields were created in various parts of the world which had not until then been served by aircraft. Navigation facilities were provided as and where required and no consideration was given to sovereign rights where national borders had to be crossed by military aircraft. With an eye to the future, however, Governments realised that operations of an international character would have to be conducted on normal lines, and due regard would once again have to be given to national requirements under peacetime regulations.

Early in 1944 the Government of the United States of America discussed these various points with other allied nations and it was generally conceded that there should be some agreement on international air transport. It was also conceded that any proposed agreement would have to be far wider in scope than the Paris Convention.

On the initiative of the President of the United States of America and on the basis of discussions already held, invitations were sent to 55 allied and neutral States to meet in Chicago in November 1944 ; of these, delegates from 52 States attended the International Civil Aviation Conference and drew up the following :—

(a) Interim Agreement on International Civil Aviation.
(b) Convention on International Civil Aviation.
(c) International Air Services Transit Agreement.
(d) International Air Transport Agreement.

The administration of the principles set out in the various agreements was to be left to the International Civil Aviation Organisation.

Interim Agreement

This Agreement stipulated that I.C.A.O. would come into existence 30 days after 26 nations had ratified the Convention. Realising that ratification

would require legislative action by the various parliaments, and that this was likely to take a considerable length of time, the Agreement established a temporary body known as the Provisional International Civil Aviation Organisation (P.I.C.A.O.) with advisory powers to remain in existence until the permanent organisation was created ; its life in any case was to be restricted to three years.

By June 6th 1945 the required minimum number of 26 nations had adhered to the Interim Agreement and the 26th ratification of the Convention itself was received on March 5th 1947. This meant that I.C.A.O. would come into existence 30 days later.

During its short life P.I.C.A.O. had laid the foundation for the permanent organisation with headquarters at Montreal. A number of draft recommendations designed to ensure safety, regularity and efficiency in international air transport had been made and States were invited to adopt these recommendations pending the establishment of international standards and recommended practices by the permanent Organisation, in accordance with the terms of the Convention.

Convention on International Civil Aviation

On April 4th 1947, the Provisional Organisation went out of existence and the permanent organisation, now known as the International Civil Aviation Organisation, replaced the temporary body.

The Convention established the International Civil Aviation Organisation and in the preamble to the Convention its purpose is set out as follows :—

> " Whereas the future development of international civil aviation can greatly help to create and preserve friendship and understanding among the nations and peoples of the world, yet its abuse can become a threat to the general security ; and
>
> whereas it is desirable to avoid friction and to promote that co-operation between nations and peoples upon which the peace of the world depends ;
>
> therefore, the undersigned Governments having agreed on certain principles and arrangements in order that international civil aviation may be developed in a safe and orderly manner and that international air transport services may be established on the basis of equality of opportunity and operated soundly and economically ;
>
> " Have accordingly concluded this Convention to that end."

The articles of the Chicago Convention established privileges and restrictions of contracting states, made provision for the adoption of international standards and recommended practices for the regulation of air navigation and proposed the reduction of customs and immigration formalities in order to facilitate air transportation generally.

The Convention also accepted the principle written into the Paris Convention that each State has complete and exclusive sovereignty over the air space above its territory.

States were required to collaborate in the matter of securing the greatest possible degree of uniformity of regulation and standards, procedures and organisation, and in such other directions as would be likely to facilitate and improve air navigation. To this end precise recommendations were drawn up for the guidance of all States.

Organisation of I.C.A.O.

It was agreed that the ultimate authority would be the Assembly which should meet annually. All member states have the right to be represented at the meetings of the Assembly, and each State is entitled to one vote.

The Assembly elects its President and other officers and decides also which member states will be represented on the Council. It examines and takes appropriate action on the reports of the Council and decides upon any matter referred to it, determines its own rules of procedure, approves the annual budget and generally determines the financial arrangements of the organisation.

The Council is made up of 21 member states. It carries out the directions of the Assembly, appoints a Secretary-General, determines its own organisation and rules of procedure, lays down methods of appointment, salaries and conditions of service of the employees, and provides for the establishment of Committees, Commissions, etc. The following Committees have been permanently established :—

(1) Air Transport Committee.

(2) Air Navigation Commission.

(3) Finance Committee.

(4) Legal Committee.

(5) Committee on Joint Support of Air Navigation Services.

The first two Committees were actually established in accordance with one of the Articles of the Convention, which in turn created a number of Divisions on specific subjects. While the Committees themselves are composed of permanent members, meetings of the Divisions are open to representatives of all Member States.

The Finance Committee, the Legal Committee and the Committee on Joint Support of Air

Navigation Services were subsequently established by the Council. Additionally, the Council established Regional Air Navigation Meetings composed of delegates from the various Member States designated by the Council ; there are now eight specific regions.

The Transit Agreement

This agreement lays down certain privileges which each member state grants to other contracting states in respect of scheduled international air services ; these are :—(1) the privilege to fly across its territory without landing ; (2) the privilege to land for non-traffic purposes.

There are, of course, certain conditions attaching to the grant of these privileges.

The Air Transport Agreement

As its name implies, this is a much more comprehensive agreement, under which contracting states grant wider privileges to other member states in respect of scheduled international air services. These have become known as the " Five Freedoms " and are as follows :—

(1) The privilege to fly across its territory without landing ;

(2) the privilege to land for non-traffic purposes ;

(3) the privilege to put down passengers, mail and cargo taken on in the territory of the State whose nationality the aircraft possesses ;

(4) the privilege to take on passengers, mail and cargo destined for the territory of the State whose nationality the aircraft possesses ;

(5) the privilege to take on passengers, mail and cargo destined for the territory of any other contracting state and the privilege to put down passengers, mail and cargo coming from any such territory.

Here again the granting of these privileges is subject to certain conditions and the Air Transport Agreement, moreover sets out in precise terms the rights of each Member State in granting permission for the normal operation of international services through its own territory.

Membership

Since it is a specialised agency of the United Nations Organisation, I.C.A.O. may admit to membership any State which has been accepted as a member of U.N.O. by the United Nations Organisation's General Assembly. As at January 1st 1953, membership of I.C.A.O. stood at 58.*

Contributions

Expenses of I.C.A.O. are borne by member states in proportions decided by the Assembly. The method employed is to treat the budget as a total number of units and assess contributions in accordance with each member's total operations and ability and convenience to pay. For example, the 1953 budget is split up into 1,500 units with U.S.A. absorbing 405, the U.K. 134, France 86, Canada 74 and so on down to the smallest contribution of two units by the smaller States such as Bolivia, Haiti, Paraguay, etc.

Relations with other International Organisations

Relationships have been established with many other International Organisations and invitations to all meetings of the Air Transport Committee and Air Navigation Commission are sent out to I.A.T.A., Fédération Aéronautique Internationale (F.A.I.) and branches of the United Nations. The Council President is also authorised to extend invitations to participate in particular meetings to any of the organisations which are invited to attend Assembly or Divisional sessions. In turn, I.C.A.O. is invited to attend meetings of other international organisations.

Conclusion

The difference in scope and functions of I.C.A.O. and I.A.T.A. will now be appreciated. I.C.A.O. is the organisation, at Governmental level, that lays down the technical standards—known as Annexes to the Convention, of which there are now 14 on different subjects—which are taken as the basis on which each Government formulates its own operating standards ; it concerns itself with the economic features of air transport ; as successor to Comité International Technique d'Experts Juridiques Aériens (C.I.T.E.J.A.), it deals with air law and has prepared a Convention on the International Recognition of Rights in Aircraft—which ensures the recognition of property and other rights in aircraft so that on an aircraft crossing a frontier, the holders of such rights are fully protected ; it finances the installation of navigation facilities in areas where the States themselves are unable, owing to lack of funds, to provide such facilities ; it maintains a number of floating ocean stations which provide weather reporting communications and search and rescue facilities ; and it affords technical assistance to certain " backward " countries on all activities connected with civil aviation.

I.A.T.A. and I.C.A.O. now work particularly closely together. This is fortunate since I.A.T.A., as an association of airlines, is affected by the decision of I.C.A.O. at every stage. By virtue of its actual experience in the operation of international services, I.A.T.A.'s recommendations are given careful consideration.

Both organisations, be it remembered, have the same aim—to further the development of international civil aviation.

* Since delivery of this paper, Libya, Honduras and Japan have been admitted, making a total of 61 up to October 8th 1953.

Notes on Transport and Traffic Cases

Summaries of law reports appearing in the Journal are prepared from the All England Law Reports (All E.R.) *published by Butterworth & Co., Ltd., and the Weekly Law Reports* (W.L.R.) *published by the Incorporated Council of Law Reporting for England and Wales. Summaries of selected decisions of the Transport Arbitration Tribunal and of the Road Traffic Appeal Tribunal are prepared by permission of the Controller, from the series published by H.M. Stationery Office under the title "Road Haulage Cases"* (R.H.C.) *and "Traffic Cases"* (T.C.) *respectively. Particulars of the subscription to each series may be obtained from the publishers.*

London County Council v. Cattermoles (Garages), Ltd.

(Court of Appeal—April 20th 1953)

The defendants, who owned a garage, employed a man as a general garage hand. Part of his duty was to assist in getting motor cars out of the way of other motor cars. This he was instructed to do by pushing them by hand. He was expressly forbidden to drive since he did not hold a driving licence. He was instructed to move a van which was obstructing the access to the defendants' petrol pumps. He got into the van and drove it on to the highway with a view to driving it back into the garage. While on the highway the van came into collision with the plaintiffs' van and damaged it. In these proceedings the plaintiffs claimed damages. The county court judge dismissed the action, holding that in driving the van the man was doing an act wholly outside the scope of his employment and the defendants were not liable.

Held, that in driving the van the garage hand was not doing something outside the scope of his employment, but what he did was merely a wrongful, improper and unauthorised mode of doing an act which was authorised by his masters, the defendants, and that accordingly they were liable for his negligence.

(W.L.R. 1953 (v. 1), p. 997).

Rotterdamsche Bank N.V. and another v. British Overseas Airways Corporation and another

(Queen's Bench Division—February 18th 1953)

In a contract, contained in an air consignment note for the carriage of goods by air between Amsterdam and Djibouti the first plaintiffs were named as consignors and the second plaintiffs as consignees. The note provided that the goods were to be carried between Amsterdam and Cairo by K.L.M. Royal Dutch Airlines by service K.L. 829. From Cairo to Asmara the goods were to be carried by British Overseas Airways Corporation by service B.O. 471, and finally the goods were to be carried from Asmara to Djibouti by B.O.A.C. by service B.O. 477. By condition 1 of conditions printed on the back of the consignment note "carrier" included all carriers conveying the goods specified in the consignment note and the agents and representatives of any such carrier. By condition 2 (b) (iii) the carriage was made subject to "applicable time-tables" of the carrier, which were made part thereof. Aden Airways, Ltd., the second defendants, operated services B.O. 471 and 477 on behalf of B.O.A.C., but they were not mentioned in the air consignment note. The goods were carried in accordance with the contract of carriage to Asmara, but, by the negligence of Aden Airways, instead of being transferred to service B.O. 477, they were left on the aircraft operating service B.O. 471 and were flown to Aden where they were stolen. The plaintiffs issued a writ against B.O.A.C. and Aden Airways claiming damages for negligence and/or breach of contract. On a summons by Aden Airways to set aside, as against them, the writ and all further proceedings on the ground that the court had no jurisdiction,

Held, as the time-tables of B.O.A.C. made it clear that the services from Cairo to Asmara and Asmara to Djibouti were to be performed by Aden Airways and as these time-tables were incorporated into the contract of carriage by the conditions set out in the consignment note, the carriage of the goods by Aden Airways remained an international carriage within the terms of the original contract, and as such was subject to the provisions of the Warsaw Convention set out in Schedule I to the Carriage by Air Act, 1932. By article 30 (1) of the convention Aden Airways were to be deemed contracting parties and all the provisions of the convention applied to them in respect of the carriage actually performed by them, and by article 28 (1) an action for damages could only be brought against a carrier before a court having jurisdiction where the carrier was ordinarily resident, had his principal place of business, or had an establishment by which the contract had been made, or before the court having jurisdiction at the place of destination ; and the effect of this article was to oust the jurisdiction of the English courts to deal with the claim against Aden Airways.

(All E.R. 1953 (v. 1), p. 675).

British Transport Commission v. London County Council

(Court of Appeal—March 5th 1953)

By the Railway and Canal Traffic Act, 1888, Section 17 (2), an appeal lay to the Court of Appeal from a decision of the Railway and Canal Commission on a question of law. The Railways Act, 1921, Section 20, established the Railway Rates Tribunal, and Section 26 provided that Section 17 of the Act of 1888 "shall apply in respect of appeals from the Rates Tribunal in like manner as it applies to appeals from the Railway and Canal Commission". By the Transport Act, 1947, Section 72 (1), the Railway Rates Tribunal became known as the Transport Tribunal, and, by schedule X, paragraph 5, to the Act, Section 26 of the Act of 1921 "shall apply with respect to the jurisdiction conferred on the Transport Tribunal by this Act as (it applies) with respect to the jurisdiction conferred on them by (the Act of 1921)". By the Railway and Canal Commission (Abolition) Act, 1949, Section 8 (2) : "The enactments mentioned in the schedule to this Act are hereby repealed and any other enactment in so far as it applies any enactment so repealed shall cease to have effect". Section 17 of the Act of 1888 was among the enactments mentioned in the schedule. On the question whether an appeal from a decision of the Transport Tribunal now lay to the Court of Appeal,

Held, schedule X, paragraph 5, to the Act of 1947 made "applicable" to the Transport Tribunal, not

the provisions of Section 17 of the Act of 1888, but the provisions of Section 26 of the Act of 1921, which were derived from and contained in the Act of 1921 although they took their origin from the provisions of Section 17 of the Act of 1888, and, therefore, schedule X, paragraph 5, was not an enactment applying Section 17 of the Act of 1888, within the meaning of Section 8 (2) of the Act of 1949, and the right of appeal to the Court of Appeal from a decision of the Transport Tribunal was unaffected by Section 8 (2).

(All E.R. 1953 (v. 1), p. 801).

Johnson v. A. H. Beaumont, Ltd., and Another

(Queen's Bench Division—April 29th 1953)

The plaintiff was employed by the first defendants as a trimmer to help in the removal of ore from the hold of a ship moored at the second defendants' jetty. When sufficient ore had been moved by the first defendant's trimmers, the second defendants' signaller stationed at the hatchway warned them to take cover while a crane with a grab operated by the second defendants descended into the hold to remove the ore. During the unloading the signaller left his post to get another lamp, one of the two lights in the hold having failed, and told the crane man to remove ore from the centre where he could see. The grab, in descending, landed on the plaintiff's foot. The plaintiff claimed damages against both defendants for breach of statutory duty, alleging that the hold was not efficiently lighted contrary to Regulations 3 and 12 of the Docks Regulations, 1934, and that the absence of the signalman constituted a breach of Regulation 43.

Held (i) That Regulation 3 did not apply to the lighting of a ship because that subject-matter was provided for in Regulation 12, but that there had been no breach of either Regulation ; (ii) the liability for the breach of Regulation 43, which by paragraph (d) of the provisions dealing with duties in the regulations, was imposed on " every person who by himself, his agent or workman carries on the processes " (" processes " including the process of unloading), plainly imposed liability on the second defendants, who were carrying on the part of the processes which above all required the presence of a signaller at the hatchway at all times. The first defendants were also carrying on part of the processes (i.e. trimming), and vis-à-vis their workmen they were also liable for failure to provide and keep in position a signalman whose presence was essential for the safety of their men in the hold. Judgment was therefore given for the plaintiff.

(W.L.R. 1953 (v. 2), p. 1153).

The Assunzione

(Probate, Admiralty and Divorce Division—June 11th 1953)

In pursuance of a chaterparty dated " Paris, October 7th 1949 ", negotiated between brokers in Paris and Genoa respectively, cargo was shipped at Dunkirk on board an Italian vessel for conveyance to Venice. The charterparty was made between French charterers and the Italian shipowners on a uniform general charter form in the English language, but neither party contended that English law was intended to govern the contract. The freight was to be paid in Italy in Italian currency. The bill of lading was in the French language. On a preliminary point whether the law to be applied to the contract was French or Italian,

Held, that the mutual intention of the parties to the contract was the fundamental consideration in determining which law was to be applied ; that the nationality of the ship's flag and the place where the contract was made were no more than considerations which the court must take into account in inferring what intention ought to be imputed to the parties ; and that in inferring that intention it was necessary to consider what intention reasonable business men would have been likely to have had (which was very much what was convenient or would give business efficacy to the contract).

The circumstances of the present case were such that there was no cogent reason for imputing to the parties an intention to make French law the proper law of the contract. The indications were more powerful in favour of Italian law, and the order would be accordingly.

(W.L.R. 1953 (v. 1), p. 292)

Day v. Harland and Wolff, Ltd.

(Queen's Bench Division—June 9th 1953)

The plaintiff, who was employed by the defendants was engaged in painting a ship with anti-fouling paint in a dry dock. A staging covered with planks had been erected in order to facilitate the painting, and the plaintiff slipped on some of the planks which were oily, fell to the bottom of the dock, and was injured. It was contended, *inter alia*, on behalf of the defendants that the painting of a ship with anti-fouling paint did not constitute " repair " of the ship, and, therefore, that there was no breach of statutory duty under the Shipbuilding Regulations, 1931, which " apply to the construction and repair of ships in shipbuilding yards ".

Held, the painting of a ship in dry dock with anti-fouling paint constitutes the " repair " of the ship, and brings the operation within the provisions of the Shipbuilding Regulations, 1931, which, according to the preamble, " apply to the construction and repair of ships in shipbuilding yards ", and, therefore, under regulation 11 (b) (i), all staging in the dock for the purpose of the operation must be securely constructed of sound and substantial material and maintained in such condition as to ensure the safety of the persons employed.

(All E.R. 1953 (v. 2), p. 387)

(*Continued from page 273*)

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Air Transport

EFFECTS OF JET AIRCRAFT ON AIRFIELD PAVEMENTS AND ASSOCIATED PROBLEMS. (*D. H. Carrack and D. G. Robertson*). London, 1953. Paper read before the Institution of Civil Engineers. pp. 31.

RECENT DEVELOPMENT OF PASSENGER AIR TRANSPORT. (*S. Tomasino*). Rome, 1953. Paper to the 14th Congress of the International Chamber of Commerce. pp. 13.

Railway Transport

FACTS AND FIGURES ABOUT BRITISH RAILWAYS, 1953 EDITION. London, 1953. British Railways. pp. 37.

HISTORY OF RAILWAY LOCOMOTIVES DOWN TO THE END OF THE YEAR 1831. (*C. F. Dendy Marshall*). London, 1953. Locomotive Publishing Co. pp. 271. 50s.

INDIAN RAILWAYS : ONE HUNDRED YEARS, 1853 to 1953. (*J. N. Sahni*). New Delhi, 1953. Indian Railway Board. pp. 200. 15s.

ISLE OF WIGHT RAILWAYS. (*Michael Robbins*). South Godstone, 1953. Oakwood Press. pp. 37. 7s. 6d.

LANCASTER-MORECAMBE-HEYSHAM LINE CONVERSION TO 50 CYCLE, SINGLE PHASE A.C. SYSTEM OF ELECTRIC TRACTION. London, 1953. British Railways. pp. 10.

LOCOMOTIVES OF THE GREAT WESTERN RAILWAY. PART 8. MODERN PASSENGER CLASSES. Cheam, 1953. Railway Correspondence and Travel Society. pp. 40. 7s. 6d.

NEW CARRIAGE CLEANING AND SERVICING DEPOT AT WILLESDEN. London, 1953. British Railways. pp. 20.

Road Transport

AIMING AT HIGHER OPERATIONAL EFFICIENCY. (*T. Bamford*). London, 1953. Paper read at the Annual Conference of the Municipal Passenger Transport Association. pp. 15.

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"THE LITTLE RED BOOK". 1953-54. London, 1953. "Passenger Transport". pp. 187. 7s. 6d. New edition of the road passenger transport directory.

MOTOR VEHICLE. (*K. Newton and W. Steeds*). London, 5th Ed., 1953. Iliffe. pp. 590. 35s. Descriptive text-book for students, draughtsmen and owner drivers.

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LENGTH OF HAUL TO LEADING MARKETS BY MOTOR TRUCK, 1941 AND 1950 : SELECTED FRUITS AND VEGETABLES. Washington, 1953. U.S. Department of Agriculture. pp. 62.

Water Transport

NORWAY AND THE BERGEN LINE : A CENTENARY PUBLICATION. (*W. Keilhau*). Bergen, 1953. Bergen Line. pp. 369.

ONE HUNDRED YEARS OF PROGRESS : A BRIEF HISTORY OF THE HARRISON LINE, 1853-1953. London, 1953. Harrison Line. pp. 31.

PORT OF SOUTHAMPTON : 150th ANNIVERSARY OF THE FOUNDATION OF THE SOUTHAMPTON HARBOUR BOARD. 1803-1953. Southampton, 1953. Southampton Harbour Board. pp. 40.

SHIPPING LAW. (*Lord Chorley and O. C. Giles*). London, 3rd Ed., 1952. Pitman. pp. 366. 30s.

TANKERMAN'S HANDBOOK : A GUIDE TO LOADING AND DISCHARGING OIL CARGOES. (*R. G. Wooler*). New York, 2nd Ed., 1950. Edward W. Sweetman. pp. 254. 60s.

Other Works

AFRICA : A STUDY IN TROPICAL DEVELOPMENT. (*L. D. Stamp*). New York and London, 1953. John Wiley and Chapman & Hall. pp. 568. 68s.

CANDIDATES' COMPANION : A GUIDE BOOK FOR EXAMINEES IN ELEMENTARY ECONOMICS. (*H. M. Croome*). London, 2nd Ed., 1953. Christophers. pp. 174. 5s. 6d.

EDUCATION AND TRAINING IN THE FIELD OF MANAGEMENT. London, 1953. British Institute of Management. pp. 199. 7s. 6d. Survey of courses and examinations.

ENGLISH COURTS OF LAW. (*H. G. Hanbury*). London, 2nd Ed., 1953. Oxford University Press. pp. 192. 6s.

GUIDE TO EXPORTING. (*T. M. Hodges*). London, 1950. Pitman. pp. 144. 15s.

LIVELIHOOD OF MAN : ECONOMICS IN THEORY AND PRACTICE. (*H. Croome and G. King*). London, 1953. Christophers. pp. 317. 10s.

MANAGEMENT UNDER NATIONALISATION : STUDIES IN DE-CENTRALISATION. London, 1953, Acton Society Trust. pp. 78. 7s. 6d.

MATERIALS HANDLING EQUIPMENT AND METHODS IN THE U.S.A. Paris, 1953. Organisation for European Economic Co-operation. pp. 170. 9s.

(*Continued on page 272*)

General Record of Meetings

Jan. 21—Cape Peninsula Section. "Quadrupling of the railway track, Cape Town—Bellville" by T. C. Sampson (Graduate).

Jan. 27—Cape Peninsula Section. Visit to Table Bay Harbour.

Mar. 4—Cape Peninsula Section. "Pension matters" by F. Smith (Graduate).

Mar. 21—Bournemouth-Poole Group. Luncheon followed by film display.

Mar. 26—Bournemouth-Poole Group. Discussion and "Organisation and terminal facilities in connexion with the conveyance of parcels and smalls" by L. G. Jacobs, A.M.INST.T.

Apr. 9—Rhodesia Section. "Railway cartage" by J. M. Fox, Managing Director, Fox & Bootless, Ltd.

Apr. 13—East Anglia Group. "Distribution methods" by C. R. Crosswell, Regional Manager, S.P.D., Ltd.

Apr. 13—Metropolitan Section. "The Army transportation service" by Lt.-Col. D. R. Stenhouse, M.B.E., A.M.INST.T.

Apr. 13—Reading Graduate and Student Society. Annual General Meeting followed by "Any questions".

Apr. 14—Manchester Graduate and Student Society. Annual General Meeting.

Apr. 14—Metropolitan Graduate and Student Society. Election of Officers and Committee, followed by "Air transport operation" by C. Gainsford (Graduate).

Apr. 14—Midland Section. Annual General Meeting followed by film display.

Apr. 14—Preston-Blackpool Graduate and Student Society. Annual General Meeting.

Apr. 14—Salisbury Group. "The function of the locomotive in transportation" by W. L. Kermack, District Mechanical Superintendent (Salisbury), Rhodesia Railways.

Apr. 14—York Graduate and Student Society. Debate.

Apr. 14—Yorkshire Section. Annual General Meeting followed by debate in conjunction with the Leeds and York Graduate and Student Societies.

Apr. 15—London. Brancker Memorial Lecture. "The influence of military aviation on civil air transport" by Sir Frederick Handley Page, C.B.E. (Past President).

Apr. 16—Cardiff-Newport Graduate and Student Society. Annual General Meeting followed by debate.

Apr. 16—Portsmouth Group. Annual General Meeting.

Apr. 16—South Eastern Group. Annual General Meeting, followed by "Transport Quiz".

Apr. 16—South Wales and Monmouthshire Section. Annual General Meeting, followed by debate with members of the Cardiff-Newport Graduate and Student Society.

Apr. 16—South Western Section. Open discussion.

Apr. 17—Tees-side Section. Annual General Meeting, followed by Brains Trust.

Apr. 20—Sheffield Graduate and Student Society. Visit to Sheffield and Ecclesall Co-operative Society Traffic Department.

Apr. 20—York Graduate and Student Society. Annual General Meeting, followed by debate.

Apr. 21—Humberside Section. "Some technical aspects of airline planning" by P. W. Brooks, Technical Adviser to Chief Executive, British European Airways.

Apr. 21—South-West Lancashire Group. Discussion.

Apr. 22—Exeter Graduate and Student Society. Discussion based on the paper on "Fundamental techniques in transport and their recent evolution" by Louis Armand, Directeur Général, Société Nationale des Chemins de Fer Français, delivered in London on January 12th 1953.

Apr. 22—Leicester Group. Annual General Meeting, followed by discussion on "Motorways".

Apr. 22—New South Wales Section. Paper by Brigadier C. E. Cameron, General Manager, Port Jackson and Manly Steamship Co.

Apr. 23—Bournemouth-Poole Group. "The licensing of P.S.V. and goods vehicles" by Sir Alfred Faulkner, C.B., C.B.E., M.INST.T.

Apr. 23—Liverpool Graduate and Student Society. Annual General Meeting, followed by discussion on examinations.

Apr. 23—Stockport Graduate and Student Society. Annual General Meeting followed by "Petroleum and its movement" by A. H. Wilson (Student).

Apr. 27—Berks, Bucks and Oxon Section. Annual General Meeting followed by "The growth and development of air traffic handling methods" by W. I. Scott-Hill, M.INST.T.

Apr. 27—Darlington Group. Annual General Meeting.

Apr. 28—London. Informal luncheon. Speaker:—John Elliot, M.INST.T., Chairman, The Railway Executive.

Apr. 28—Manchester Graduate and Student Society. Visit to the works of Richard Johnson & Nephew, Wire Manufacturer.

Apr. 28—South-West Lancashire Group. Annual General Meeting.

Apr. 30—East Midlands Section. Annual General Meeting, followed by film display.

May 4—East Anglia Group. Annual General Meeting.

May 6—Irish Section. "Air transport" by M. Stuart-Shaw, A.M.INST.T.

May 12—Leeds Graduate and Student Society. Annual General Meeting.

May 12—Salisbury Group. Film display.

May 13—Exeter Graduate and Student Society. Annual General Meeting and discussion.

May 13—Yorkshire Section. Visit to the works of Ferodo, Ltd.

May 14—Bournemouth-Poole Group. Annual General Meeting.

May 14—Merseyside Section. Annual General Meeting.

May 17—Bolton Graduate and Student Society. Summer Visit.
May 18—Sheffield Graduate and Student Society. Annual General Meeting.
May 19—Humberside Section. Annual General Meeting.
May 19—South-West Lancashire Group. Visit to Joseph Crosfield & Sons, Ltd.
May 20—Northampton Group. Annual General Meeting.
May 21—South Western Section. Annual General Meeting.
May 21—Western Section. Visit to Cadbury Bros., Ltd., Bournville.
May 27—East London Discussion Group. "Economy on the railways" by E. F. Peter (Student).
May 28—Lagos Graduate and Student Society. Business Meeting.
May 28—New South Wales Section. "Road transport's answer to the Chairman's inaugural address" by R. L. Morton, M.INST.T.
Jun. 8—Northern Ireland Section. Annual General Meeting.
Jun. 9—Salisbury Group. "What has 'federation' to offer in the field of transport" by K. H. Day, A.M.INST.T.
Jun. 10—Cape Peninsula Section. "The part played by transport in the development of South Africa" by R. Lyle, A.M.INST.T.
Jun. 10—Northern Section. Visit to York.
Jun. 11—Bristol Graduate and Student Society. Visit to the Bristol Aeroplane Co., Ltd., Filton.
Jun. 11—Victorian Section. Discussion on the Melbourne City and Suburban Rail System.
Jun. 17—Yorkshire Section. Tour of the Yorkshire Dales.
Jun. 17—Merseyside Section. Visit to Stanlow Refinery of Shell-Mex & B.P., Ltd.
Jun. 18—North Western Section. Visit to Matlock.
Jun. 19—Irish Section. Visit to the Port of Dublin.
Jun. 20—Portsmouth Group. Visit to London.
Jun. 23—Nottingham Graduate and Student Society. Visit to the Trent Motor Traction Co., Ltd., Derby.
Jun. 24—Berks, Bucks and Oxon Section. Visit to Cadbury Bros., Ltd., Bournville.
Jun. 25—Lagos Graduate and Student Society. Visit to Apapa Wharves and Sidings.
Jun. 26—New South Wales Section. Paper by A. A. Shoebridge, M.INST.T.
Jun. 27—South Western Section. Summer visit.
Jul. 6—Sheffield Section. Visit to the Exhibition of the Esso Petroleum Co., Ltd.
Jul. 8—Cape Peninsula Section. Visit to the depots of Cape Town City Tramways.
Jul. 13—Scottish Section. Annual General Meeting.
Jul. 14—Nottingham Graduate and Student Society. Visit to Colwick Marshalling Yards.
Jul. 15—East London Discussion Group. "Harbour facilities" by D. Scott (Student).
Jul. 18—South Eastern Group. Visit to Dover Harbour.
Jul. 20—Sheffield Section. Annual General Meeting.
Jul. 30—Humberside Section. Visit to Trinity House, Hull.
Jul. 30—Lagos Graduate and Student Society. Debate.
Jul. 30—New South Wales Section. "Transport costs" by W. A. Anderson, Secretary for Railways, New South Wales.
Aug. 5—East London Section. "The turn-round of shipping at South African Ports" by J. A. Cussons (Student).
Aug. 11—Salisbury Group. "Table Bay docks" by J. F. Carlisle, Assistant Engineer, Rhodesia Railways.
Aug. 12—Cape Peninsula Section. "New works improvement—Cape Peninsula area" by J. F. Zoutendyk, Resident Engineer (New Works), South African Railways, Cape Town.
Aug. 13—Victorian Section. "Air transport—air beef scheme" by I. H. Grabowsky, Planning and Development Manager, Australian National Airways.
Aug. 26—Cape Peninsula Section. Annual Dinner.
Aug. 26—East London Section. Film display.
Aug. 26—Humberside Section. Visit to the Hull Brewery Co., Ltd.
Aug. 27—Lagos Graduate and Student Society. Debate.
Aug. 27—New South Wales Section. Address by Dr. K. N. E. Bradfield, Chief Design Engineer of Airports, Department of Civil Aviation, New South Wales.
Sept. 4 to 7—Johannesburg Section. Study Tour.
Sept. 13—Portsmouth Group. Visit to the Society of British Aircraft Constructors' Exhibition and Flying Display.
Sept. 15—Manchester Graduate and Student Society. Discussion on examinations with the Examinations Officer.
Sept. 16—Preston-Blackpool Graduate and Student Society. Discussion on the examinations with the Examinations Officer.
Sept. 17—North Western Section. Visit to Ringway Airport, Manchester.
Sept. 17—Liverpool Graduate and Student Society. Discussion on examinations with the Examinations Officer.
Sept. 17—Northern Ireland Section. Visit to Belfast Corporation Gas and Chemical Works.
Sept. 17—Portsmouth Group. Brains Trust.
Sept. 18—Lancaster Graduate and Student Society. Discussion on examinations with the Examinations Officer.
Sept. 18—Middlesbrough Graduate and Student Discussion on examinations with the Examinations Officer.
Sept. 21—Darlington Group. "Air transport from the commercial aspect" by J. W. Swann, A.M.INST.T.
Sept. 24—East Midlands Section. Visit to the Carlisle Works of the Birmingham and Midland Motor Omnibus Co., Ltd.
Sept. 24—Lagos Graduate and Student Society. Debate.
Sept. 24—New South Wales Section. "Various phases of the interstate shipping trade with particular emphasis on penalty rates of pay" by H. L. Morgan, Chairman, Australasian Steamship Owners' Federation.
Sept. 25—Nottingham Graduate and Student Society. "Functional design and profit" by P. V. Lennon (Graduate).

Sept. 28—Berks, Bucks and Oxon Section. "Road haulage at the cross roads" by G. W. Quick Smith, M.INST.T.

Sept. 28—Sheffield Graduate and Student Society. "Outline of the foundation, history and development of the Institute" by L. Matthews, M.INST.T., and film display.

Sept. 28—York Graduate and Student Society. Visit to the Carriage and Wagon Works, British Railways (N.E. Region), York.

Sept. 29—Irish Section. Election of Officers and Committee followed by film display.

Sept. 29—Leeds Graduate and Student Society. Discussion on "Bus operation".

Elections to Membership

JULY 14TH 1953

Students

ELOFF, FREDERICK JOHANNES ZACHARIAS. South African Railways.
HOPE, GEORGE WILFRED. South African Railways.
JACOBS, RONALD GEORGE. Victorian Transport Regulation Board.
PARROTT, REGINALD VICTOR. South African Railways.
SWEETZER, DOUGLAS ERIC JOHN. British Railways.
TELLWRIGHT, BASIL MORETON. Royal Engineers.

JULY 28TH 1953

Graduates

CLYMO, JOHN CHARLES. Ribble Motor Services, Ltd.
PEARCE, JOHN EDGAR GASCOYNE. Wilts and Dorset Motor Services, Ltd.
PIGGOTT, PAUL WILLIAM CHRISTOPHER, M.C. Chivers & Sons, Ltd.
SHARP, JOHN GODFREY. British Railways.
THOMAS, WILLIAM GWYNFOR. Liverpool Corporation Transport.

Students

ALLEN, DAVID GORDON. Victorian Railways.
ATKINSON, LEONARD JAMES. Victoria Transport Regulation Board.
BARTER, WALTER GEORGE READ. N.A.A.F.I.
COOKE, REGINALD CHARLES. British Railways.
GOLDSMITH, SIDNEY RALPH. Queensland Department of Harbours and Marine.
HOWELLS, ERIC ISAIAH MORGAN. British Railways.
JELFS, IAN GEORGE. Victorian Railways.
JONES, GEORGE THOMAS. British Vinegars, Ltd.
KENT, NEAL FRANCIS. Queensland Department of Transport.
O'DOWD, RAYMOND THOMAS. Queensland Department of Transport.
PETERS, JOSEPH LIONEL. J. Thomas & Co., Ltd.
PORTER, REGINALD ALFRED. Birmingham & Midland Motor Omnibus Co., Ltd.
STOWER, RODNEY ARTHUR. Queensland Department of Transport.
THEK, VICTOR RONALD. Trans-Australia Airlines.
WHITE, JOHN WEYMOUTH. Victorian Railways.

AUGUST 4TH 1953

Graduates

COOK, EWART GEORGE. British Road Services.
ELMS, CHARLES ROY. British Railways.
FORD, WILLIAM RICHARD. W. & R. Jacob & Co., Ltd.
FRISBY, ROBERT. British Railways.
HARDY, ERNEST EDWIN. British Overseas Airways.
HARE, JOHN PATEMAN. British Railways.
THOMSON, STANLEY GRAY. British Railways.

Students

BOND, ALFRED CHARLES. Stanley Spencer's Tours, Ltd.
BROWN, REX. Anglo-Iranian Oil Co., Ltd.
BRYAN, WARREN BRADLEY. Regent Oil Co., Ltd.
SINCLAIR, DONALD FRANK HARVEY. Hongkong Transportation Co., Ltd.

AUGUST 18TH 1953

Graduates

BANTON, JOHN DENIS. British Railways.
BUNTING, BRIAN JAMES. Belfast Harbour Commissioners.
DEELEY, ALAN HENRY CHARLES. British Railways.
HILDITCH, GEOFFREY GRAHAM. Leeds City Transport.
HORSFALL, HAROLD. British Railways.
HUNT, JOHN. London Transport.
MOLUMBY, RICHARD. Córas Iompair Eíreann.
MOORE, BERNARD BRYAN. British Railways.
PARK, NEIL CAMPBELL. British Road Services.
POWELL, ROBERT ESMOND. British Railways.
RAYNER, ALAN JOHN. British Railways.
ROBERTS, ARCHIBALD JAMIESON. British Railways.
SMITH, NEVILLE DALLAS HAYDEN. Eastern Counties Omnibus Co., Ltd.
STRONG, KENNETH FREDERICK. British Railways.
WALTON, ERNEST ARTHUR. British Railways.
WILLIAMS, WILLIAM ROBERT. Coast Lines, Ltd.

Students

BENSON, GEOFFREY KENNETH BREARCLIFFE. London Transport.
BROWN, DAVID MC CORMACK MONTEITH.
COSGROVE, MICHAEL. Salford City Transport.
DENT, GEOFFREY ROBERT. British Railways.
DONOHUE, PAUL THOMAS. Victorian Railways.
EDNIE, IAN WEBB. Vacuum Oil Co., Pty., Ltd.
GEORGE, BENJAMIN DOUGLAS GRIFFITHS. Eagle Oil & Shipping Co., Ltd.
GUNASEKARA, M. JAYAWEERA. Ceylon Government Railway.
MASON, WILLIAM ALBERT ROYSON. British Railways.
NEILSON, HAROLD JOSEPH. London Transport.
O'FLYNN, PATRICK FINBAR. Córas Iompair Eíreann.
REILLY, JOHN WILLIAM. Victoria Department of Supply.
SHORT, REGINALD WILLIAM. National Dock Labour Board.
SMITH, GEORGE HANSON. Albion Motors, Ltd.
STELLARD, GEORGE. British Railways.
STONE, JOHN. Melbourne Harbour Trust.
TURNER, RONALD JOHN. Royal Mail Lines, Ltd.

WESTCOTT, *Sqdn.-Ldr.* LESLIE JOHN MARTIN. Royal Air Force.
WRIGHT, JOHN STANLEY. British Railways.

SEPTEMBER 1ST 1953

Graduates

ANDREW, JOHN HERBERT. Midland General Omnibus Company, Ltd.
BIGGS, DAVID JOSEPH. Cunard Steamship Co. Ltd.
BURNHAM, JAMES REGINALD. British Railways.
CALLEN, JOHN PHILLIPS. Chamber of Shipping of the United Kingdom.
DELAMORE, DENNIS. Robert Jenkins & Co., Ltd.
EASTABROOK, WILLIAM LAURENCE. British Railways.
GRAY, BERTIE RICHARD. British Road Services.
HAY, NORMAN STEPHEN. British Railways.
KEEN, PETER ALFRED. London Transport.
LAURIE, JAMES ALFRED. S.P.D., Ltd.
MAYHEW, FREDERICK JAMES. British Railways.
PARKER, JOHN DAVID MC INNES. British Railways.
ROBERTS, RICHARD DEREK. British Railways.
ROBERTSON, *Captain* JAMES STANLEY. Royal Engineers.
SIDEY, LESLIE BENJAMIN. British Railways.

Students

ADDLEY, DOUGLAS GORDON. Queensland Government Railways.
ANKUMA, EMMANUEL. Gold Coast Government Railway.
BARNES, LIONEL GEORGE. London Transport.
BATE, ALAN WILFRED. British European Airways.
CANTRILL, JACK. British Railways.
CARROLL, LEON AUSTIN. Trans-Australia Airlines.
CARTWRIGHT, *F./Lt.* JAMES. Royal Air Force.
FLINT, JON BARRIE. S.P.D., Ltd.
HALL, GEORGE HENRY MILROY. Glasgow Corporation Transport.
HARVEY, DOUGLAS. New Zealand Government Railways.
HOWES, ALAN GEORGE. Imperial Chemical Industries, Ltd.
JAGO, REGINALD JOHN. British Railways.
JONES, NEVILLE. Queensland Government Railways.
KELLOND, DONALD PERCIVAL. Victorian Railways.
LEE, NORMAN LINDSAY. W. Angless & Co. (Aust.), Pty., Ltd.
LYNAM, CHARLES RICHARD. Alfred Bird & Sons, Ltd.
MENARY, GERALD JOSEPH. Victoria Transport Regulation Board.
MITCHELL, FRANK MADDEN. Victorian Railways.
MOULT, BRIAN PATRICK. British Railways.
PARR, ARTHUR FREDERICK. Ministry of Transport and Civil Aviation.
ROSSER, NORMAN WILLIAM. British Waterways.
SCOTT, JOHN HENRY. F. Sherherd & Son, Ltd.
SELVARATNAM, SINNATHAMBY THAMBITHURAI.
STARR, JAMES. Co-operative Wholesale Society, Ltd.
SWINDEN, BERNARD FRANCIS. Scribbans-Kemp (Bakeries), Ltd.
VAUGHAN, JOHN RICHARD. Capital Motor Co., Ltd.
WALTERS, RONALD WILFRED. London Transport.
WATTS, DEREK. Rockware Glass, Ltd.
WHITTY, JOHN PATRICK. British Road Services.

SEPTEMBER 15TH 1953

Students

BALL, GORDON. Bolton Corporation Transport.
BARLOW, GEORGE WILLIAM. British Railways.
BARLOW, JAMES CUTHBERT. Queensland Government Railways.
BETTS, GEORGE MICHAEL. Walls Shipping, Ltd.
BETTS, RONALD. Trent Carriers, Ltd.
CLARKE, GEOFFREY VINCENT. East Midlands Gas Board.
COLEMAN, GLYN HARROD. West Monmouthshire Omnibus Board.
COLPUS, JOHN ERNEST. Alexr. Howden & Co., Ltd.
CORNWALL, RALSTON.
DINNAGE, JOHN ARTHUR. British Railways.
FRANCIS, KENNETH HORACE. British Overseas Airways.
GARNER, RAYMOND. British Railways.
GIDDINGS, CYRIL EDGAR DANIEL BARRY. Rhodesia Railways.
GRACEY, JOHN CAMPBELL. British Railways.
GUNANAYAGAM, THAMBIAH. Ceylon Government Railway.
HERBERT, DONALD GEORGE EDWARD. Red & White Services, Ltd.
HUGHES, WILLIAM CHARLES, British Railways.
IRELAND, GEOFFREY. Victoria Transport Regulation Board.
JOHNSON, ERIC ARTHUR. British Waterways.
JONES. EIFION. Red and White Services, Ltd.
LANE, CLIFFORD ARTHUR. Crystal Motor, General and Electrical Engineers.
LAPHAM, WILLIAM GEORGE. British Railways.
LAWRENCE, JOHN ROBERT. British Railways.
LITTLE, GORDON DAVID. Gellatly Hankey & Co., Ltd.
MAJUMDAR, AMIT KUMAR. Calcutta Port Commissioners.
MUOIO, ANDREW NAIRN. British Railways.
PERRETT, HUGH WILLIAM. F. W. Woolworth & Co., Ltd.
POLHILL, PETER MONTAGU. British Overseas Airways.
POWER, JOHN WILLIAM. United Transport Co., Pty., Ltd.
PRIDDLE, *Miss* MARY DIANA. Bristol Tramways & Carriage Co., Ltd.
QUASHIE, JOHN MENSAH. British Railways.
SARGEANT, PETER WILLIAM. British European Airways.
SCOTT, ERIC ANTHONY JOEL. London Transport.
SMITH, DENIS. British Railways.
TESTER, DAVID BRIAN. London Barge Co., Ltd.
THOMAS, TREVOR CHARLES. British Railways.
VEYSEY, JAMES WILLIAM. British Railways.
VIERKANT, HENDRIK PETER DAVIS. S.P.D., Ltd.
WATTS, NORMAN ARTHUR. Bristol Tramways & Carriage Co., Ltd.
WEPENER, IMMANUEL. South African Railways.
WHITFIELD, WILLIAM CHARLES JESSE. London Transport.
WILSON, DUNCAN FAIRLIE. British European Airways.

SEPTEMBER 21ST 1953

Members

ATTWELL, ALFRED LEE. Superintendent (Commercial and Staff), South African Railways.
BARKER, HUGH PURSLOVE. Part-time Member of the British Transport Commission ; Managing Director, Parkinson & Cowan Group of Companies.
EVERARD, HENRY BREEDON, D.S.O., T.D. General Manager, Rhodesia Railways.
GARLAND, DAVID JAMES. Deputy Chief Engineer, Main Roads Department, Queensland.

HICK, FRANCIS LOUIS. Assistant to Chief Regional Manager (General), British Railways (N.E. Region).
HODSON, HARRY. Commercial Manager, The Distillers Company, Limited.
HUGHES, NORMAN ALLAN, M.B.E., T.D. Midlands Manager, Cunard Steampship Company, Ltd.
KILLANIN, The Rt. Hon. LORD, M.B.E., T.D. Director, Irish Shell, Ltd.
KING, CHARLES FREDERICK LAWRENCE. Director and General Manager, British Wagon Co., Ltd.
KIRBY, WALTER DONALD. Statistical Assistant to Chief of Operation, British Railways.
MITCHELL, ROBERT MORTON. Chief Executive Officer and Secretary, Road Haulage Association.
TAIT, *Group Captain* NORMAN ALEXANDER, O.B.E. Deputy Director (M.T.), Air Ministry.
TREEN, STANLEY JAMES. Assistant Manager, Distribution Department, Shell-Mex & B.P. Ltd.
WEBSTER, IAN GORDON. Traffic and Sales Manager, Australian National Airways.

Associate Members

ABBS, RONALD ERNEST. Eastern Counties Omnibus Co., Ltd.
BAILES, ALBERT. T. Roddam Dent & Son, Ltd.
BAILEY, CYRIL ARCHIBALD HUGH. British Railways (Southern Region).
BATTY, JAMES BERESFORD. Bolton Corporation Transport.
BLOOR, SYDNEY. Potteries Motor Traction Co., Ltd.
BOLLARD, JOHN WEYMOUTH. Bournemouth Corporation Transport.
BRYCE, ALEXANDER WITHER. British Railways (Scottish Region).
CHAPMAN, HAROLD. British Waterways.
CHESTER, HARRY GREENWOOD. British Railways (L.M. Region).
COCKER, JOSEPH CLIFFORD. British Railways (E. Region).
CONWAY, DEREK JAMES KELSHAW. Cunard Steamship Co., Ltd.
CUSSONS, JEREMIAS ANDREW. System Manager (East London), South African Railways.
DAVIES, WILFRED MELVILLE. British Railways (W. Region).
DRINAN, ERNEST ALEXANDER. British Railways (L.M. Region).
EMBELIN, RICHARD ELVY. London Transport.
EWING, JOHN BLACKLEY LOGAN. British Railways (L.M. Region).
FORMAN, ANTHONY COURTHOPE. British Railways.
GARDNER, ALEXANDER LOGAN. British Railways (Scottish Region).
GEORGE, HENRY PERCIVAL. Traffic and Location Engineer, Victoria Country Roads Board.
GIBBS, RONALD CASHMORE. Coast Lines, Ltd.
GRAHAM, GEORGE BOYD. British Railways (L.M. Region).
GREEN, DENNIS LEONARD. British Road Services.
HALL, WILLIAM JOHN. British Railways (E. Region).
HAMILTON, RONALD KILPATRICK. Ulster Transport Authority.
HUTCHINGS, ELLIS RAYMOND. British Road Services.
HUTCHINSON, GEORGE LANCELOT. Smith Parkinson & Cole, Ltd.
IBBOTSON, WILLIS. Newton Chambers & Co., Ltd.
JOHNSON, DOUGLAS PAXTON. British Road Services.
KETTLEWELL, DAVID LINDSAY. British Railways (Scottish Region).
LAWRENCE, THOMAS RICHARD. British Railways (Southern Region).
LECKIE, KENNETH WILLIAM STUART. Cunard Steam-Ship Co., Ltd.
LEWINS, THOMAS. British Railways (L.M. Region).
LONGMAN, HENRY THOMAS. British Road Services.
LOSTY, *S./Sgt.* PATRICK ALFRED. Royal Engineers.
LOWE, CHARLES ARTHUR. British Road Services.
LOWE, HENRY. General Manager, Leigh Corporation Transport.
MC CAW, JAMES. St. Helens Corporation Transport.
MAC COLL, DUNCAN NEIL. British Railways (Scottish Region).
MC CRACKEN, DAVID. Dalziel Co-operative Society, Ltd.
MACDONALD, RODERICK MURDO. Port Captain (East London), South African Railways.
MC KAY, ANDREW FOGGO. British Railways (Scottish Region).
MANNING, JAMES. Great Northern Railway (Ireland).
MARX, JOHANNES HENDRICUS IGNATIUS. Rhodesia Railways.
MITCHELL, DAVID ALLAN WALKER. British Railways (Scottish Region).
MOHIDEEN, MOHAMED SHARKER. Office of the Commissioner of Motor Traffic, Ceylon.
NICHOLSON, GEORGE BERTRAM. West Bromwich Corporation Transport.
O'CONNELL, GEOFFREY MOORE. Hull Corporation Transport.
ONGLEY, PETER BASIL. London Transport.
OWEN, JOHN ROBERT CECIL. Imperial Chemical (Pharmaceuticals), Ltd.
PALMER, RONALD. Stockport Corporation Transport.
PIGRAM, RONALD JAMES. London Transport.
ROBERTS, LESLIE. Trent Motor Traction Co., Ltd.
SCOTT, ALBERT MONCHY. British Railways (L.M. Region).
STEEL, JOHN GARDNER. T. Roddam Dent & Son, Ltd.
TINDALL, DEREK ARTHUR. British Railways (N.E. Region).
WALTON, JAMES WILKIE. Northern General Transport Co., Ltd.
WILLIAMS, RONALD ALFRED. British Railways (Southern Region).

Associates

CARLTON, ISAAC JOHN HATTINGH. Transport Manager, East London Municipality.
CARTER, ROBERT LIMBERT. Manager (Northern Ireland), British European Airways.
COX, LAWRENCE JOHN. Station Master (Waterloo), British Railways (Southern Region).
DOWLE, ROBERT CHARLES GRAHAM. Consulting Automobile Engineer and Assessor.
EARNSHAW, TOM. District Traffic Superintendent, Metropolitan District, Western Australian Government Railways.
GRAY, ALBERT. Coal and Transport Officer, West Midlands Gas Board.
JELBART, NORMAN THOMAS. Supply Controller, Australian Paper Manufacturers, Ltd.
KINGSLAND, EDWARD WILLIAM JOHN. Divisional Distribution Manager (Southern), Shell-Mex & B.P., Ltd.

LANCASHIRE, ERIC PEAK. Manager, Dingle Bank Installation, Shell-Mex & B.P., Ltd.
MURRAY, ANDREW. Distribution Manager, Scottish Oils and Shell-Mex, Ltd.
REEVES, HENRY. Traffic Superintendent, Rochdale Corporation Transport.
ROGERS, FREDERICK FRANK. Divisional Distribution Manager (North Western), Shell-Mex & B.P., Ltd.
SHRAGAH, SAMUEL. Petroleum Distribution Planning Assistant, Shell-Mex & B.P., Ltd.
STEWART, ERIC RICHARD. Sales Manager, J. Brockhouse (S.A.), Ltd.
WORTH, MAURICE FREDERICK JOHN. Divisional Distribution Manager (Eastern), Shell-Mex & B.P., Ltd.

SEPTEMBER 22ND 1953

Graduates

BARRETT, DOUGLAS GODFREY. Ulster Transport Authority.
CURZON, STANLEY ARTHUR. Babcock & Wilcox, Ltd.
FINBURG, DENNIS. British Railways.
HAMEL, JOHANNES. South African Railways.
MOORE, JOHN BRYAN. Chesterfield Corporation Transport.
MOORE, KERRY WEST. New Zealand Shipping Co., Ltd.
O'MAOLALAI, DONAL SEOSAMH. Great Northern Railway (Ireland).
O'ROURKE, JOHN PATRICK. Port of London Authority.
OVERTON, ROBERT LLOYD. British Railways.
PEARSON, ERIC NORMAN. British Railways.
SHAW, ANTHONY GEORGE. London Transport.
SHORT, FREDERICK KENNETH. F. Short & Sons, Ltd.
SMITH, WILLIAM RONALD. British Railways.
TODMAN, THOMAS EDWARD. British Railways.
WHALLEY, WILFRED. British Road Services.

Students

BRYDEN, DOUGLAS RONALD. Edwin C. Walters & Co.
BURRIDGE, CYRIL ARTHUR. London Transport.
CLARKE, CHARLES JOSEPH. British Railways.
DEBBAGE, ROBERT JAMES. Eastern Counties Omnibus Co., Ltd.
FORBES, IAN FRANK. United Africa Co., Ltd.
HILL, EDWARD REGINALD. British Railways.
LASHKERI, JAL FRAMROZE. Bombay Electric Supply & Transport Undertaking.
LEA, THOMAS, D.S.C. West African Airways.
MAIR, JAMES WOOD. British Railways.
OMERDEEN, ABDUL ZAVAHID.
QUARM, SAMUEL WILLIAM. Cape Coast Municipal Bus Service.
SHARP, PETER GEORGE CHARLES. S.P.D., Ltd.
THOMSON, DOUGLAS PAUL. Rhodesia Railways.
WOOD, DOUGLAS ARTHUR. British Railways.
WRIGHT, GRAHAM PERCY. Bristol Steam Navigation Co., Ltd.

SEPTEMBER 29TH 1953

Graduates

CALVERT, ROGER GEORGE ROBERT. British Railways.
GOULBORN, KENNETH HERBERT. British Railways.
HARTLEY, DENNIS ARTHUR. British Railways.
HILL, JOHN HODGSON. Sheffield Corporation Transport.
LYNHAM, *Flying Officer* HEDLEY JOHN. Royal Air Force.
MC BAIN, DAVID MALCOLM. Ministry of Transport and Civil Aviation.
O'FLYNN, CHARLES CHRISTOPHER. Córas Iompair Eireann.
WILLIAMS, JOHN LESLIE. East African Railways.
WILSON, ERNEST LESLIE. Cunard Steamship Co., Ltd.

Students

AIRTH, DENIS HENLEY. South African Railways.
ALLEN, ANTHONY HUGH. British Railways.
BRADY, KIERAN GEORGE. Córas Iompair Eireann.
BROOKES, STUART. Transport Salaried Staffs' Association.
BURKETT, COLIN. Maidstone & District Motor Services, Ltd.
COLDERICK, DENNIS RONALD. British Railways.
DOSSEN, WEBER ANDREW. Liberian Government.
EVANS, RONALD NORMAN. Imperial Chemical Industries Ltd.
FIELDING, ERIC. Yelloway Motor Services, Ltd.
HOOKER, JAMES RONALD. Thatcher, Hobson & Co., Ltd.
MC CORMACK, *Miss* SARAH THERESA. London Transport.
RIGGOTT, EDWARD. British Railways.
SAMARAJIVA, DICKWELLE GURUGE BANDUSUNANA.
TURNER, JACK. British Railways.
WEBBER, PHILIP MONTAGU. British Railways.
WEDLAKE, GEORGE PASKEL. Western Welsh Omnibus Co., Ltd.

OCTOBER 6TH 1953

Students

ADESOYE, OLATUNJI AGORO.
AMOO, ISAAC. Gold Coast Government Railway.
BARTON, ALAN JOHN. London Transport.
BRAYBROOK, KENNETH ALFRED. British Railways.
CAIRNS, DAVID THOMAS. British Transport Commission.
CALLOW, DONALD. British Railways.
DALY, BRENDAN HAYDN ANTHONY. Córas Iompair Eireann.
DEVONALD, JOHN DAVID GRIFFITHS. British Railways.
GNANATHIKKAM, CASINATHAR. Ceylon Government Railway.
GREEN, RONALD EDWARD, D.F.C. British European Airways.
HEWETSON, DONALD ANGELO. Ministry of Transport and Civil Aviation.
HOLEHOUSE, JOHN ARTHUR. British Railways.
JONES, ALAN. British Railways.
MC CORMICK, MALCOLM YORK. Pacific Steam Navigation Co.
MC LAREN, MATTHEW. British Railways.
MASON, EDMUND. Port of London Authority.
MORGAN, HAROLD. British Railways.
O'REILLY, BERNARD. British Railways.
QUARTON, JOHN ARTHUR GEORGE. British Transport Commission.
SNODING, PETER. S.P.D., Ltd.
TAYLOR, PATRICK JOSEPH. British Railways.
THORBURN, GEORGE GUTHRIE PETRIE. Ministry of Transport and Civil Aviation.
WARN, PATRICK JOSEPH. British Railways.

NOTICES CONTINUED

R. Tuft, M.B.E., M.Inst.T.
Chairman, East Midlands Section

GENERAL PURPOSES COMMITTEE

John Elliot (President), C. T. Brunner (Chairman), J. B. Burnell, L. G. Burleigh, R. W. Birch, C. K. Bird, H. Bolton, H. H. Crow, K. Granville, H. G. N. Read, G. H. Searle, S. B. Taylor, A. B. B. Valentine, J. S. Wills ; Chairmen, Standing Committees : Sir Gilmour Jenkins, D. R. Lamb, T. W. Royle, P. J. R. Tapp.

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LIBRARY AND RESEARCH COMMITTEE

John Elliot (President), H. H. Crow (Chairman), A. Earle Edwards, J. T. Evans, C. H. S. Pickett, R. Tuft.

MEMBERSHIP COMMITTEE

John Elliot (President), D. R. Lamb (Chairman), N. N. Bird, W. A. Flere, W. Fraser, D. H. Handover, A. G. Marsden, A. C. B. Pickford, G. N. Russell, N. S. Taylor ; Chairman, Examinations Committee : T. W. Royle.

SCHOLARSHIPS COMMITTEE

John Elliot (President), P. J. R. Tapp (Chairman), M. Beevor, A. Bull, J. B. Burnell, E. L. Cadwallader, H. Adams Clarke, J. T. Evans, E. S. Hunt, W. M. Little, P. G. Masefield, L. Matthews.

Johannesburg Section Study Tour 1954

A study tour is being arranged in the Cape Peninsula from February 8th-19th 1954. The party will be accommodated at the Cape Town University Hostel at Marbray. The main feature of the tour will be a study of the fruit and fishing industries and visits will be made toWolseley, Paarl and Franschhoek. The tour will also include excursions to Hermanus, Cape Point and other places of scenic interest, a trip by cable way to the top of Table Mountain, a cruise to Dassen Island, film displays, a banquet and a visit to the Houses of Parliament.

Beds, Cambs and Hunts Section Area

The area of the Beds, Cambs and Hunts Section has been adjusted to include members of the Institute of all grades in the Newmarket and Bury St. Edmunds areas of West Suffolk (hitherto included in the area of the East Anglia Group).

Midland Section Constitution

The Council has approved a resolution of the Midland Section which, amongst other things, fixes the number of Ordinary Members of Committee at twelve, stipulates a maximum period of four consecutive years' service as an Ordinary Member and a minimum break of three years after completion of service as an Officer or Ordinary Member before re-election, and provides for the retirement of four Ordinary Members at each Annual General Meeting.

Section Committees

The following particulars of appointments and changes have been received :—

IRISH SECTION

Chairman : T. C. Courtney. *Vice-Chairmen :* G. B. Howden, F. Lemass. *Hon. Treasurer :* J. O'Leary. *Hon. Secretary :* R. L. F. Woodhouse. *Committee :* T. F. Brazil, T. A. Crawford-Young, W. J. Gleeson, G. B. Gray, A. J. O'Brien-Twohig, W. H. Prendergast, J. H. Scott, P. T. Sheridan, D. Stewart, M. Stuart-Shaw.

METROPOLITAN SECTION

Metropolitan Graduate and Student Society

Chairman : H. W. Holloway. *Vice-Chairmen :* J. A. Carey, H. P. B. Betlem, L. G. Chamberlain. *Hon. Treasurer :* A. J. Allum. *Hon. Secretary :* P. B. Ongley. *Hon. Assistant Secretary :* C. Gainsford. *Committee :* A. Dowsett, W. A. Forrest, H. Geoghegan, G. Hill, A. G. Kershaw, W. Thurgar, H. G. M. Viney. *Hon. Auditors :* C. A. Butts, J. E. Skegg.

NORTH WESTERN SECTION

Stockport Graduate and Student Society

Chairman : A. H. Wilson. *Vice-Chairman :* J. A. Worthington. *Hon. Secretary and Treasurer :* B. F. Casey. *Committee :* M. Finnigan, R. Palmer, J. B. Roff, G. A. Williams. *Hon. Auditors :* J. Green, E. M. Leigh. *Advisory Member :* J. Green.

SCOTTISH SECTION

Chairman : W. M. Little. *Immediate Past Chairman :* L. E. Marr. *Vice-Chairmen :* J. Barrie, T. H. Hollingsworth, W. F. Quin. *Hon. Treasurer :* Thos. Gray. *Hon. Secretary :* J. Stuart Ferrier. *Committee :* H. Adamson, J. Amos, E. W. Burness, T. F. Cameron, A. Campbell, E. R. L. Fitzpayne, J. M. Fleming, R. B. Harrison, J. B. Hastie, T. I. Kinley, L. W. Pike, A. Prentice, J. R. Proudfoot, J. W. Swann, D. Watson, R. A. Welsh, R. L. Young.

SHEFFIELD AND DISTRICT SECTION

Chairman : L. Matthews. *Immediate Past Chairman :* W. B. Carter. *Vice-Chairmen :* E. Deakin, K. A. Kindon. *Hon. Secretary and Treasurer :* W. Bingley. *Hon. Assistant Secretary :* P. J. Cheshire. *Committee :* G. J. Aston, P. D. Baggaley, G. P.

Gardner, W. Glentworth, C. F. Lawrence King, R. C. Moore, E. Norman, N. Rylance, E. J. Shaw, R. B. Temple, G. Warrington. *Hon. Auditor :* C. Darwent.

SOUTHERN SECTION

Chairman : W. D. Reakes. *Immediate Past Chairman :* O. H. Lewis. *Vice-Chairmen :* C. N. Anderson, C. S. G. Keen, G. H. Napthine. *Hon. Treasurer :* G. A. J. Starke. *Hon. Secretary :* J. E. Cowderoy. *Committee :* H. J. Babbage, W. Cooper, A. Dudley, C. P. Eastburn, P. G. Filer, R. A. Hardy, R. I. H. Longman, G. A. Park, D. C. L. Racher, W. P. Ransom, W. Robinson, W. H. Scutt, F. W. Sellwood, H. T. G. Ward, A. J. Wright. *Hon. Auditor :* H. F. Hawkins.

Bournemouth-Poole Group

Chairman : E. R. Hutchings. *Vice-Chairman :* H. Harding. *Hon. Treasurer :* E. E. Edwards. *Hon. Secretary :* W. P. Ransom. *Hon. Assistant Secretary :* J. W. Bollard. *Committee :* J. Clayton, J. E. Cowderoy, L. G. Jacobs, G. Scarff.

WESTERN SECTION

Gloucester-Cheltenham Group

Chairman : H. A. Roberts. *Hon. Secretary and Treasurer :* G. N. Green. *Committee :* G. R. Bonavia, R. L. Dance, A. C. W. Impey, A. C. Lisle, C. S. N. Walker.

Bristol Graduate and Student Society

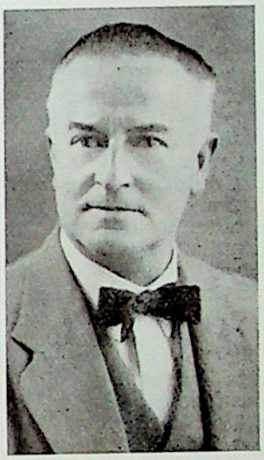
Chairman : F. E. Dark. *Vice-Chairman :* K. R. G. Hannis. *Hon. Secretary and Treasurer :* E. W. Perrin. *Committee :* F. T. Baker, R. C. Gibbs, J. R. Jeffrey, N. S. Robertson, A. J. Wheeler, D. W. Wright.

Institute of Transport Awards, 1952-53

The following awards, authorised by the Council in respect of papers submitted during the 1952-53 session, and in respect of successes at the 1953 examinations, were reported at the Inaugural Meeting held on October 5th 1953 and presented to those in attendance :—

Triennial Award of Merit :—to SIR REGINALD WILSON, M.INST.T., Member, British Transport Commission, for his paper on " The framework of public transport with special reference to the problems of monopoly, undue size and incentives ".

M. F. Frost, A.M.Inst.T.
Chairman, South Western Section



C. S. R. Hall, M.Inst.T.
Chairman, Merseyside Section

British Transport Commission Awards :—(1) to A. J. PEARSON, M.INST.T., Chief Officer (Special Duties), British Railways, for his paper on " Developments and prospects in British transport, with special reference to railways " ; (2) to C. F. KLAPPER, A.M.INST.T., Editor, *Modern Transport*, for his paper on " The decline and fall of London tramways " ; (3) to J. A. BIRKS (Student), Trainee, British Electric Traction Associated Omnibus Companies' Training Scheme, for his paper on " Past and present influences in urban growth affecting the development of the road passenger transport industry " ; (4) to T. B. MAUND (Graduate), Chart Room Supervisor, W. C. Standerwick, Ltd., for a praiseworthy performance in the Associate Membership examination.

Road Transport (Passenger) Medal :—to E. R. L. FITZPAYNE, M.INST.T., General Manager, Glasgow Corporation Transport, for his paper on " Road passenger transport related to economic laws ".

Institute 1944 *Award :*—to A. A. FULLALOVE, A.M.INST.T., Clerk, South African Railways, for his paper on " Traffic problems in the Cape Peninsula with some suggestions for their solution ".

Institute Graduate Award :—to J. ARMSTRONG, Assistant to Area Manager (Portsmouth), Southdown Motor Services, Ltd., for his paper on " The problem of workers' fares ".

Institute Student Award :—to J. HALL, Inspector, Manchester Corporation Transport, for his paper on " Speed, staff and statistics related to road passenger transport ".

Associate Membership Examination :—(a) Prize for first place to D. E. F. TILBURY (Graduate), Clerk, Royal Mail Lines, Ltd. ; (b) Prize for second place to P. A. LOSTY (Graduate), Staff Sergeant, Royal Engineers.

Graduateship Examination :—(a) Prize for first place to P. H. S. WROE, Assistant to the Technical Adviser, Central African Airways ; (b) Prize for second place to R. J. MUSTOE, Trainee, British Road Services.

"*Modern Transport*" *Award* :—in recognition of a praiseworthy performance at the Graduateship Examination which has not qualified for another prize to A. FERGUSON, Clerk, Rhodesia Railways.

Partial Exemption from Examinations

(This information must be read in conjunction with the examination regulations—e.g. candidates for the Graduateship and Associate Membership examinations or for partial exemption therefrom must be Students and Graduates of the Institute respectively. Applications for exemption must be made by letter accompanied by documentary evidence of the possession of the required qualifications. A holder of a degree must include evidence of the subjects taken.)

The only applications for exemptions from subjects of the Institute of Transport examinations which are considered are as follows :—

1. By the holder of a degree of a University of the United Kingdom of Great Britain and Northern Ireland.

Graduateship Examination :—Exemption from English and from corresponding subjects taken in the degree examination (this applies to Statistics only if the candidate specialised in Statistics).

2. By the holder of the Extra Master's Certificate.

Graduateship Examination :—Exemption from English, Law of Transport and Economic Geography.

Associate Membership Examination :—Exemption from Sea Transport Operation.

3. By the holder of the Master's Certificate of Competency (Foreign Going).

Graduateship Examination :—Exemption from English, Law of Transport and Economic Geography.

4. By the holder of the City of London College Certificate in Shipping.

Graduateship Examination :—Exemption from Part II.

Associate Membership Examination :—Exemption from Part II. (Certificates awarded after 1954 will also carry exemption from Law of Sea Transport).

5. By a regular officer of the R.E. or R.A.S.C. of the rank of Major and above, having 5 years transport service and having passed the Longmoor Course (R.E.) or the Advanced Transport Course (R.A.S.C.).

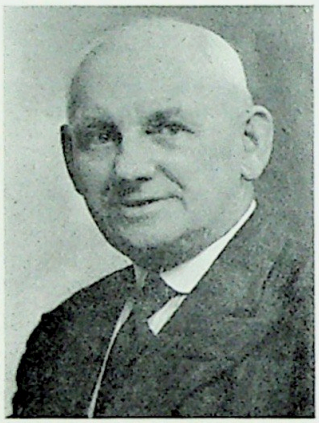
Graduateship Examination :—(Until September 30th 1956 only) Exemption from whole examination. See paragraph 6 for exemptions from the Associate Membership examination.

6. By a regular officer of the R.E. or R.A.S.C. of the rank of Captain and above, having 5 years transport service, and having passed the Long Transportation Course (R.E.), or the Advanced Transport Course (R.A.S.C.).

Graduateship Examination :—Exemption from English, Law of Transport, and Economic Geography. (An R.E. candidate who has passed the Long Transportation Course may apply also for exemption from Elements of Transport).

Associate Membership Examination :—Exemption from Law of Transport and Transport Operation.

7. By a regular officer of the R.E. or R.A.S.C. of the rank of Lieutenant and above, having 3 years transport service.



J. E. Peacock, M.Inst.T.
Chairman, Tees-side Section

Graduateship Examination :—Exemption from English, Law of Transport, and Economic Geography. (An R.E. candidate who has passed the Long Transportation Course may apply also for exemption from Elements of Transport).

Johannesburg Section Study Tour 1953

Shortened version of an account presented by B. A. Radford (*Student*).

From Friday, September 4th to Monday, September 7th 1953, members of the Johannesburg Section under the leadership of Mr. J. J. Kesting, M.INST.T., enjoyed a 400-mile study tour of the Orange Free State goldfields area.

The party was accommodated at the Railway College at Kroonstad.

Saturday morning was devoted to a visit to the Welkom Gold Mine, where the visitors inspected the modern township, a native hostel where the kitchens and native beer vats, and also the communal mess and sleeping quarters, proved a source of interest, and the Oppenheimer Native Hospital. After luncheon despite a dust storm, the party travelled by road to Odendaalsrus and Virginia to observe the growth of these mining areas in comparison with Welkom.

On Sunday morning, instructors from the Railway College demonstrated the working of train control instruments, locomotives, teleprinters and telephone exchanges. A brief visit was also made to the College Library.

Although Monday was a public holiday, there was great activity at Sasolburg, the town where a factory is being erected for the extraction of petrol from coal. The plant is vast and, as construction is still in its initial stages, the tour of the area was made by car. The Chief Engineer extended a cordial invitation to the party to return in just over a years' time to view the plant in operation.

The tour party arrived back at Johannesburg on Monday evening with very pleasant memories of the kindnesses rendered by the Principal and members of the staff of the Kroonstad Railway College and by their hosts at all the other places of call during their brief but interesting study tour.

GUY

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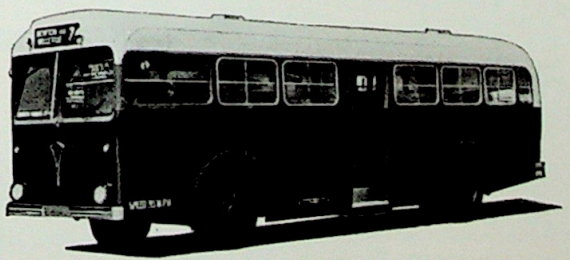

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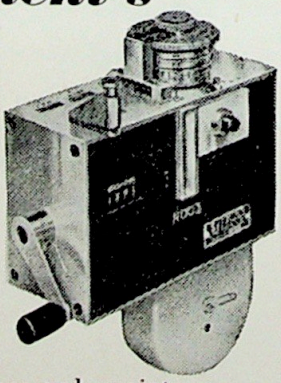

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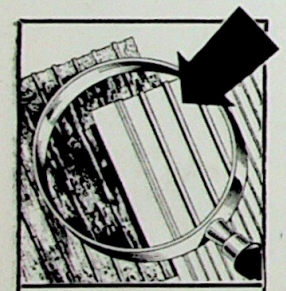
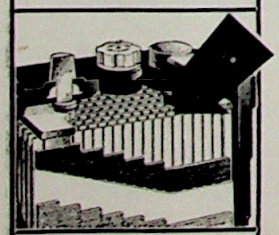
DAGENITE BEATS MAIN CAUSE OF MOTOR BATTERY BREAKDOWN WITH SERVICE-PROVED PLASTIC



Until Porvic, wood was the best-known separator material for motor batteries. But, unlike Porvic, this was not indestructible. Diagram shows wood and Porvic after normal use. See how wood disintegrates while Porvic (arrowed) is unscathed.



Porvic in position — separating the positive and negative plates for all their long life.

PORVIC—

Indestructible in use!

The life of a motor battery can be no longer than that of its separators —usually the first thing to go. Now Dagenite have solved this problem with Porvic—a microporous plastic separator material that is practically *indestructible in use.*

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in London and at other centres to be announced later

Forms of entry for the examinations must be deposited not later than March 1st 1954

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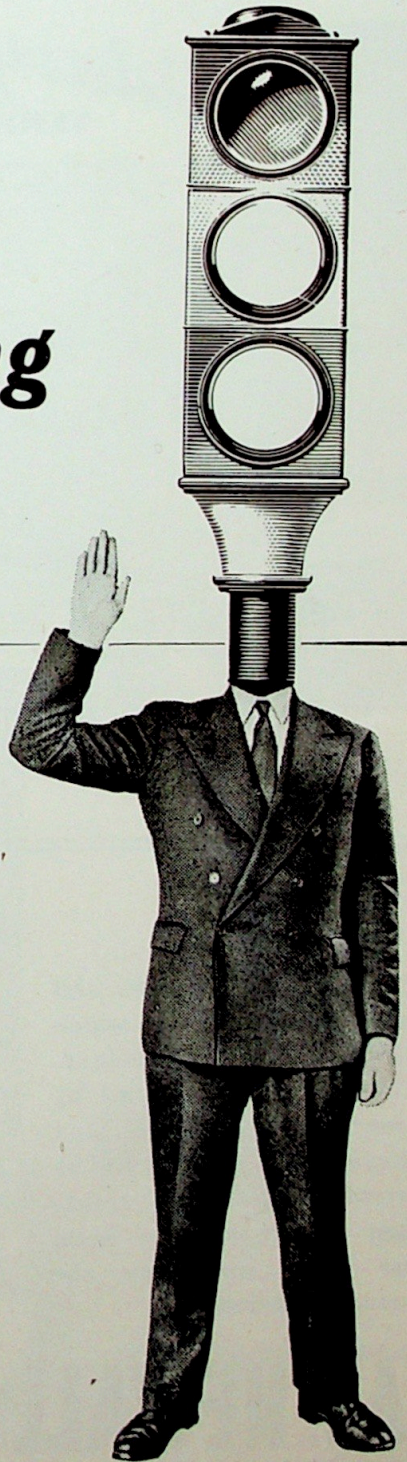

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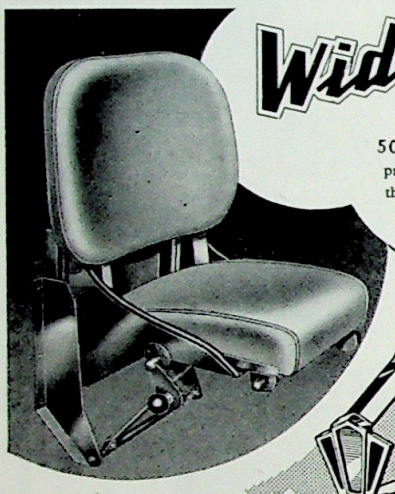

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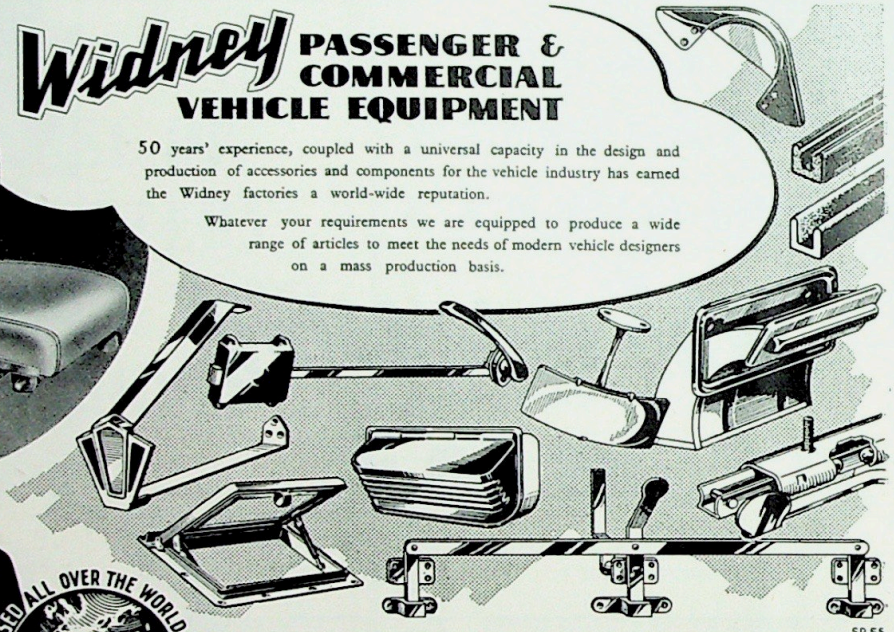

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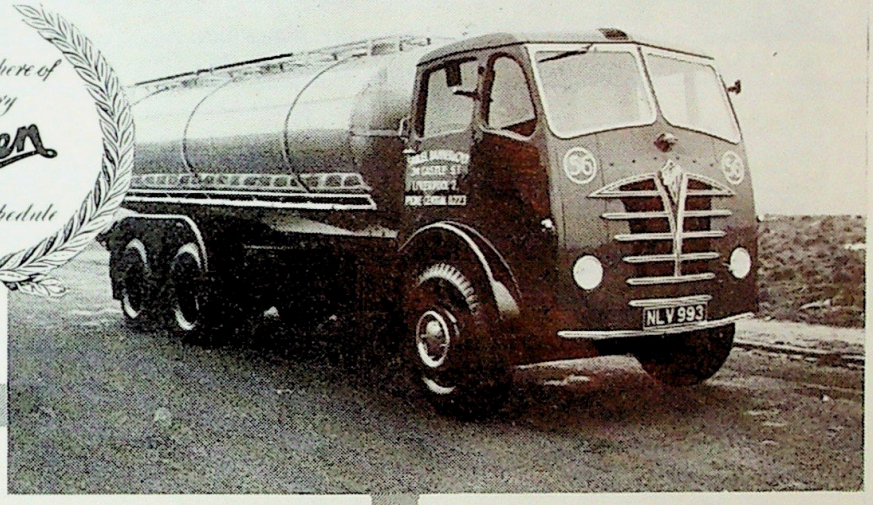

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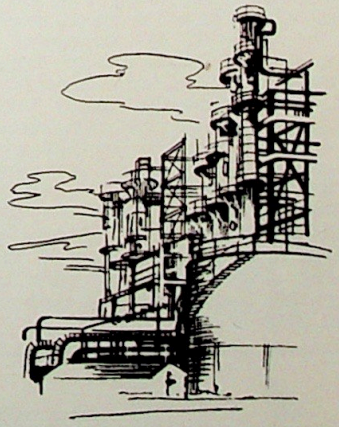

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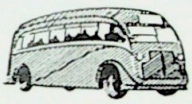

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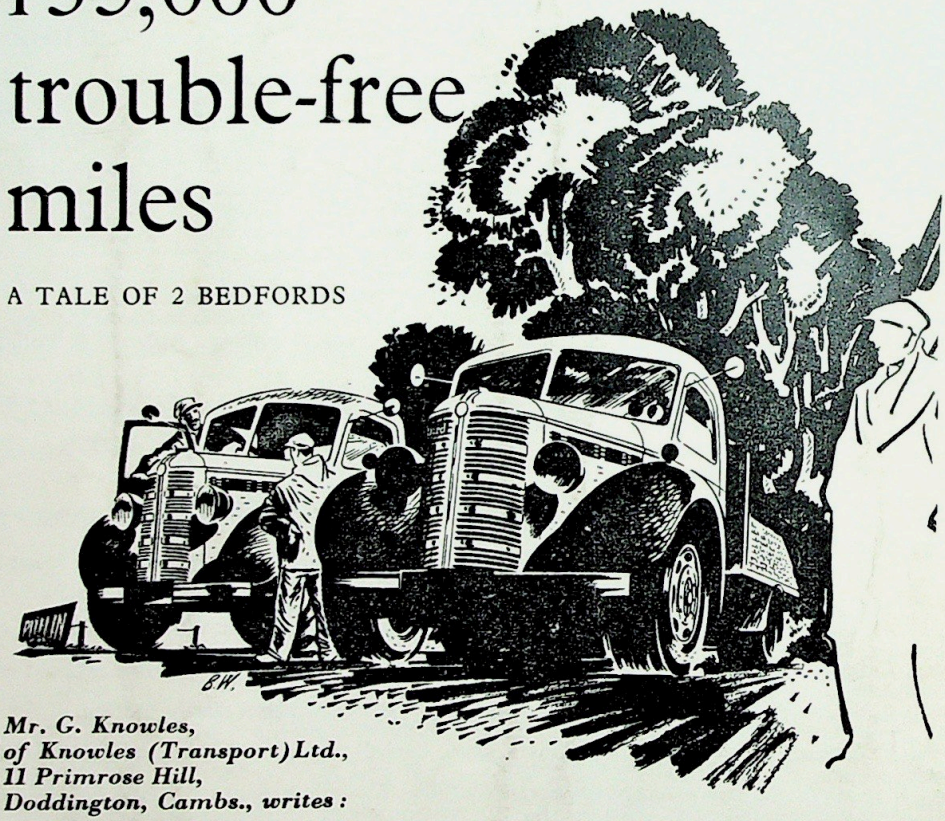

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